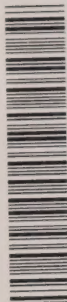


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Ontario

ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 372

DATE: Monday, April 27, 1992

BEFORE:

A. KOVEN Chairman

E. MARTEL Member



FOR HEARING UPDATES CALL (COLLECT CALLS ACCEPTED) (416) 963-1249

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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of a Notice by The Honourable
Jim Bradley, Minister of the Environment,
requiring the Environmental Assessment
Board to hold a hearing with respect to a
Class Environmental Assessment (No.
NR-AA-30) of an undertaking by the Ministry
of Natural Resources for the activity of
Timber Management on Crown Lands in
Ontario.

Hearing held at the offices of the Ontario
Highway Transport Board, 10th Floor, 151 Bloor
Street West, Toronto, Ontario, on Monday, April
27, 1992, commencing at 10:30 a.m.

VOLUME 372

BEFORE:

MRS. ANNE KOVEN
MR. ELIE MARTEL

Chairman
Member

A P P E A R A N C E S

MR. V. FREIDIN, Q.C.	)	MINISTRY OF NATURAL
MS. C. BLASTORAH	)	RESOURCES
MS. K. MURPHY)	
MR. B. CAMPBELL)	
MS. J. SEABORN	)	MINISTRY OF ENVIRONMENT
MS. N. GILLESPIE)	
MR. R. TUER, Q.C.	)	ONTARIO FOREST INDUSTRY
MR. R. COSMAN	)	ASSOCIATION and ONTARIO
MS. E. CRONK	)	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY	)	ASSOCIATION
MR. D. HUNT)	
MR. R. BERAM		ENVIRONMENTAL ASSESSMENT BOARD
MR. J.E. HANNA	)	ONTARIO FEDERATION
DR. T. QUINNEY	)	OF ANGLERS & HUNTERS
MR. D. O'LEARY		
MR. D. HUNTER	)	NISHNAWBE-ASKI NATION
MR. M. BAEDER	)	and WINDIGO TRIBAL COUNCIL
MS. M. SWENARCHUK	)	FORESTS FOR TOMORROW
MR. R. LINDGREN)	
MR. D. COLBORNE	)	GRAND COUNCIL TREATY #3
MR. G. KAKEWAY)	
MR. J. IRWIN		ONTARIO METIS & ABORIGINAL ASSOCIATION
MS. M. HALL		KIMBERLY-CLARK OF CANADA LIMITED and SPRUCE FALLS POWER & PAPER COMPANY

APPEARANCES (Cont'd):

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MR. Y. GERVAIS)	ONTARIO TRAPPERS
MR. R. BARNES)	ASSOCIATION
MR. P. ZYLBERBERG)	NORTHWATCH COALITION
MS. B. LLOYD)	
MR. J.W. ERICKSON, Q.C.)		RED LAKE-EAR FALLS JOINT
MR. B. BABCOCK	)	MUNICIPAL COMMITTEE
MR. D. SCOTT	)	NORTHWESTERN ONTARIO
MR. J.S. TAYLOR	)	ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL		GREAT LAKES FOREST
MR. S.M. MAKUCH		CANADIAN PACIFIC FOREST PRODUCTS LTD.
MR. D. CURTIS	)	ONTARIO PROFESSIONAL
MR. J. EBBS	)	FORESTERS ASSOCIATION
MR. D. KING		VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. H. GRAHAM		CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN		DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC		MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES		ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI		BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY

APPEARANCES (Cont'd):

MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON
MR. C. BRUNETTA	NORTHWESTERN ONTARIO TOURISM ASSOCIATION

I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>HERB BAX,</u> <u>DARLENE DAHL; Sworn</u> <u>BERNIE NEARY; Affirmed</u>	64607
Direct Examination by Ms. Seaborn	64617

I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
2200A	MOE statement of evidence dated February 20, 1992.	64608
2200B	MOE reference book dated February 20, 1992.	64608
2200C	Letter dated March 23, 1992 from Ms. Seaborn re: errata sheet.	64608
2201	MOE interrogatory responses to MNR Questions 1 to 15 and OFAH/NOTOA Coalition Questions 1 to 40 and report entitled: The Acidification of Ontario Lakes dated January, 1990.	64609
2202	MOE's draft terms and conditions dated February 20, 1992.	64610
2203	20-page document entitled: Overheads Bernie Neary.	64654
2204	Simple hand-drawn diagram of some ionic reactions prepared by Mr. Neary.	64685
2205	Four-page excerpt from Magpie Forest FMA 1989-2009.	64699
2206	Three-page excerpt from 1985 Draft Environmental Assessment.	64701
2207	16-Page document entitled: Overheads Herb Bax.	64712
2208	Hand-drawn diagram entitled SGRs and Free to Grow prepared by Mr. Bax.	64747

1 ---Upon commencing at 10:30 a.m.

2 MADAM CHAIR: Good morning. Please be
3 seated.

4 Good morning, Ms. Seaborn.

5 MS. SEABORN: Good morning, Madam Chair,
6 Mr. Martel. I would like to proceed this morning by
7 introducing our witnesses. To my left is Bernie Neary
8 and in front of me is Mr. Herb Bax, and to my right is
9 Ms. Darlene Dahl.

10 And, Madam Chair, seated to my left is
11 Mr. Mark Sutterfield who, of course, needs no
12 introduction and will be assisting me this week as
13 well.

14 Perhaps, Madam Chair, if we could begin
15 by having Mr. Bax and Ms. Dahl sworn and Mr. Neary
16 would like to be affirmed.

17 MADAM CHAIR: All right, fine. Would the
18 witnesses approach the Board, please. You can stay
19 where you are, Mr. Neary, that's fine. We have up
20 Bible here.

21 HERB BAX,
22 DARLENE DAHL, Sworn
BERNIE NEARY, Affirmed

23 MS. SEABORN: Madam Chair, there are a
24 number of documents that should be made exhibits and
25 perhaps we can proceed to have those documents marked

1 now.

2 The first document is the MOE's statement
3 of evidence dated February 20th, 1992.

4 MADAM CHAIR: This document will become
5 Exhibit 2200.

6 ---EXHIBIT NO. 2200A: MOE statement of evidence dated
7 February 20, 1992.

8 MS. SEABORN: Perhaps we should mark that
9 2200A and mark the MOE's reference book also dated
10 February 20th, 1992 as Exhibit 2200B.

11 MADAM CHAIR: Thank you, Ms. Seaborn.
12 Mr. Martel had just suggested that too.

13 ---EXHIBIT NO. 2200B: MOE reference book dated
14 February 20, 1992.

15 MS. SEABORN: And the third document that
16 goes with the witness statement is a letter to Mr.
17 Pascoe from myself dated March 23rd, 1992 which is an
18 errata sheet, and perhaps that could be 2200C. I have
19 copies for the Board. (handed)

20 MADAM CHAIR: Thank you.

21 - ---EXHIBIT NO. 2200C: Letter dated March 23, 1992 from
22 Ms. Seaborn re: errata sheet.

23 MS. SEABORN: And the next document,
24 Madam Chair, I would like to have marked are MOE's
25 interrogatory responses to Questions 1 to 15 posed by

1 the Ministry of Natural Resources and Questions 1 to 40
2 posed by the OFAH/NOTOA Coalition, and I have bound
3 copies for the Board and parties. (handed)

4 MADAM CHAIR: Thank you. That will be
5 Exhibit 2201.

6 ---EXHIBIT NO. 2201: MOE interrogatory responses to
7 MNR Questions 1 to 15 and
8 OFAH/NOTOA Coalition Questions 1
9 to 40 and report entitled: The
Acidification of Ontario Lakes
dated January, 1990.

10 MS. SEABORN: Madam Chair, with respect
11 to the interrogatory responses the OFAH/NOTOA Coalition
12 had asked for copies of two large documents, one of
13 which is an MOE policy manual. One copy of that manual
14 has been provided to Mr. Pascoe for parties review and
15 so that manual is obviously not included in the Exhibit
16 2201.

17 The second document is a document called
18 The Acidification of Ontario Lakes which was provided
19 to all the parties when we responded to the
20 interrogatories and so I have not included that
21 document in the bound version.

22 If parties have it with them, perhaps we
23 should also mark this as 2201 because it goes with the
24 interrogatories.

25 MADAM CHAIR: All right. Do you want to

1 have this as A or B or...

2 MS. SEABORN: I think we can just give it
3 the same number because it is in relation to the
4 interrogatory responses.

5 MADAM CHAIR: All right. This is a
6 January, 1990 report on the Acidification of Ontario
7 Lakes.

8 MS. SEABORN: Yes. Mr. Neary is the one
9 of the authors of that report.

10 MADAM CHAIR: All right. And it is 171
11 pages in length.

12 MS. SEABORN: Yes.

13 And the final document I would like to
14 mark as an exhibit are MOE's draft terms and conditions
15 dated February 20th, 1992 which were provided to all
16 parties to the hearing with our witness statement.

17 MADAM CHAIR: That will become Exhibit
18 2202.

19 ---EXHIBIT NO. 2202: MOE's draft terms and conditions
20 dated February 20, 1992.

21 MS. SEABORN: Madam Chair, before we
22 proceed with the evidence I would like to address two
23 issues that the Board requested in the scoping session
24 that we address at the outset of our evidence.

25 The first issue was whether any further

1 changes have been agreed to by MNR with respect to
2 MOE's terms and conditions.

3 The first matter I would like to deal
4 with is the fish habitat guidelines. If you turn
5 to page 9 of the MOE terms and conditions, which is now
6 Exhibit 2202, you'll see that we had indicated that we
7 had a concern with respect to the timing of return cuts
8 on the shorelines of warm water lakes and that if this
9 matter was not resolved prior to our appearance that we
10 may propose a term and condition.

11 We will not be proposing a term and
12 condition in respect of this matter. We're satisfied
13 that the existing training messages that were
14 introduced by MNR during their case are sufficient to
15 satisfy our concern with respect to second cuts and MNR
16 will be amending the fish habitat guidelines at its
17 next regular amendment to include the aspects of those
18 training messages that are relevant to this issue.

19 MADAM CHAIR: And do we have the training
20 messages an exhibit anywhere?

21 MS. SEABORN: Yes. I believe it's
22 Exhibit 492 but I'll check that.

23 Now, the second issue that I would like
24 to address is the ongoing discussions with MNR and the
25 Industry in relation to the removal of water crossings

1 on abandoned rods, and rather than dealing with that
2 issue now, Mr. Neary will address that particular
3 matter and where those discussions stand as part of his
4 evidence-in-chief.

5 And, in particular, that discussion
6 relates to MNR's term and condition 43(d) and MOE's
7 term and condition 43(e).

8 And the final issue I would like to
9 address, there have also been discussions with the MNR
10 with respect to MOE's proposed term and condition
11 requiring the mapping of preferred silvicultural
12 packages, and that term and condition is found at page
13 5 of MOE's terms and conditions.

14 Now, the alternative term and condition
15 wording with respect to term and condition 32(a) has
16 been agreed to by the Ministry, and rather than
17 addressing that matter now, if it's acceptable to the
18 Board Mr. Bax will address the revised wording during
19 his evidence-in-chief.

20 MADAM CHAIR: Excuse me, Ms. Seaborn.
21 Does this refer specifically to No. 32(b)?

22 MS. SEABORN: No, this refers to term and
23 condition 32(a)(iii) proposed by MOE--

24 MADAM CHAIR: All right.

25 MS. SEABORN: --where we suggest that

1 preferred silvicultural packages contained in the
2 silvicultural ground rules be portrayed on maps.

3 MADAM CHAIR: Thank you.

4 - MS. SEABORN: And Mr. Bax will be
5 addressing some alternate wording in respect of that
6 particular matter during his evidence-in-chief.

7 The industry has also been involved in
8 discussions with respect to the mapping of
9 prescriptions and this has come about quite recently in
10 terms of the new term and condition wording. I
11 understand that Mr. Cassidy has not had an opportunity
12 to review the new wording with his client and will do
13 so over the next day or so.

14 Now, at this point in time the balance of
15 MOE's terms and conditions do remain at issue and these
16 are the areas that our witnesses will be addressing the
17 Board on over the next couple of days.

18 And the second matter, Madam Chair, you
19 raised at the scoping session was what position MOE is
20 taking with respect to proposals by other parties that
21 are not discussed in our written evidence.

22 You had indicated to Ms. Gillespie at the
23 scoping session that parties seemed to be asking for
24 some clear position by MOE as to whether we support or
25 oppose their positions, and you left that question with

1 Ms. Gillespie.

2 I can advise the Board that as a result
3 of the work done in advance of the last round of the
4 negotiations, parties do have an indication now of what
5 position MOE takes in respect of their various terms
6 and conditions.

7 We've been updating that work on a
8 continuous basis as the hearing proceeds and will
9 continue to do so, especially in light of the revised
10 terms and conditions that we have recently received
11 from Forests for Tomorrow and from the Industry.

12 Now, we had intended to deal with the
13 proposals of the intervenors in the written portion of
14 our final argument rather than to try -- in this
15 presentation to the Board this week to try and deal
16 with all of the other various proposals that have been
17 put forward by the intervenors.

18 And it's my submission that the witnesses
19 who are here this week are not being offered to provide
20 comment in respect of these various other terms and
21 conditions that have been proposed to the Board by the
22 other parties, they're here to address the areas that
23 are set out in the witness statement.

24 But we did want to indicate to the Board
25 that as a result of the negotiations it's our view at

1 least that the intervenors do have a very clear picture
2 of where MOE stands with respect to their various
3 proposals.

4 You had also indicated in the scoping
5 session that you would like Ms. Dahl to advise whether
6 MOE is going to take a position at some point that the
7 Board should ignore a great deal of the evidence and
8 narrow its focus on the information that is contained
9 in the index to EA components that was prepared by Ms.
10 Dahl and presented as part of her evidence.

11 I wanted to address that matter briefly
12 now before we get into evidence. It's our position
13 that the Board cannot ignore evidence and we will not
14 be suggesting in final argument that you do so. The
15 Board should not conclude from the index that this is
16 our position, and the position we will be taking in
17 final argument, though, is that the final approval
18 should be structured in such a way that certain EA
19 matters are addressed.

20 The Board has heard various details in
21 evidence with respect to a variety of aspects of timber
22 management and, in our submission, those provide the
23 context for the EA matters that must be addressed in a
24 plan.

25 I think the distinction that we're making

1 and that Ms. Dahl will address is that the EA
2 components should be readily identifiable and that's
3 really as far as our proposal goes, it is not a
4 structure for final argument of MOE's position with
5 respect to this approval.

6 Unless the Board has any questions with
7 respect to those preliminary matters, I propose to
8 commence with the qualifications of the witnesses.

9 MADAM CHAIR: Please go ahead, Ms.
10 Seaborn.

11 MS. SEABORN: Thank you. Given that the
12 MNR and the Industry has raised the matter of
13 experience with respect to Mr. Neary's expertise the
14 qualification portion is going to take a little longer
15 than I would have otherwise planned.

16 MR. CASSIDY: Perhaps I can indicate,
17 Madam Chair, that my concern with respect to Mr.
18 Neary's expertise is in the area where he proposes to
19 discuss nutrient depletion and nutrient cycling.

20 I don't need to hear, from my perspective
21 at least, statements of qualifications with respect to
22 his expertise in respect to acidification, for example.
23 Some of the others may be possible.

24 MR. FREIDIN: Madam Chair, perhaps I
25 should also just clarify here, as I think I did at the

1. scoping session my concern with Mr. Neary's evidence in
2. relation to the nutrient cycling is not directed so
3. much to his knowledge regarding nutrient cycling, per
4. se, and perhaps the chemical reaction that goes on
5. within soils, what I'm interested in hearing is about
6. his expertise to comment on the connection between that
7. chemical reaction or nutrient cycling and its effect on
8. site productivity; i.e., its effect on the ability to
9. grow vegetation, as opposed to the effect or connection
10. between that chemical reaction and its effect on the
11. aquatic environment.

12. MS. SEABORN: I think, Madam Chair, those
13. are precisely the issues that I will be addressing in
14. terms of the questions I have for Mr. Neary with
15. respect to his qualifications.

16. MADAM CHAIR: All right. And then the
17. qualification of Ms. Dahl and Mr. Bax should be done
18. fairly quickly.

19. MS. SEABORN: Yes. A matter was raised
20. with respect to, not their expertise, but their
21. experience. I will, therefore, briefly go through
22. their qualifications given that that concern was
23. raised.

24. DIRECT EXAMINATION BY MS. SEABORN:

25. Q. Mr. Neary, your CV is filed behind

1 Tab 4 of the witnesses statement?

2 MR. NEARY: A. Yes, it is.

3 Q. And what is your current position?

4 A. Since 1985 I've been supervisor of
5 the Lake Management Studies Group, that's part of the
6 limnology section of the Water Resources Branch.

7 We're located in Dorcet, Ontario about
8 two and a half hours north of here, and professionally
9 I'm considered to be a chemist and a limnologist.

10 Q. What is the purpose of your unit with
11 the MOE?

12 A. The mandate of our unit is to look at
13 the way human activities affect lakes. Some of the
14 stresses that human activities can put on lakes are
15 things like eutrophication, which is loading too much
16 nutrients in the lake, acidification, contamination by
17 substances that are toxic either to humans or aquatic
18 biota.

19 Some of our studies include the
20 collection and analysis of water quality on -- well,
21 right now we have a database of over 6,000 lakes in the
22 province.

23 We do mathematical modeling of various
24 lake processes. We measure the effects of nutrient
25 input on specific lakes. We construct what are called

1 nutrient budgets for lakes, and right now we're
2 exploring the use of GIS technology and remote sensing
3 to assess lake water quality.

4 Q. Could you tell the Board what a
5 limnologist is.

6 A. A limnologist is somebody who studies
7 lakes, that means the physics, chemistry and biology of
8 lakes along with the mechanisms that can affect them.

9 Q. Does this mean you only look at
10 lakes?

11 A. No. The primary focus of what we're
12 doing is the study of lakes and in lake processes, but
13 to understand the stresses on lakes you have to
14 understand the mechanisms that affect them.

15 For example, those mechanisms could
16 include atmospheric deposition of various materials,
17 the introduction of contaminants or nutrients from a
18 point source or non-point source, non-point sources.

19 But as far as my evidence before the
20 Board goes, it requires a good understanding of
21 processes and the whole watershed around the lake. I
22 have to look at -- I have to look at what's going on in
23 the watershed, I have to look at what chemicals are
24 entering that watershed and how they're transported and
25 transformed before they actually reach the lake.

1 Q. Can you give examples of non-point
2 source effects?

3 A. Well, I think without question the
4 biggest non-point source effect on lakes in Ontario is
5 agriculture. You get things like fertilizers and other
6 agricultural chemicals coming in, the fact that the
7 fields are pretty well void of vegetation under certain
8 cropping practices leads to erosion problems, lots of
9 excess water yield. But forestry practices and
10 urbanization in a watershed are other examples of
11 non-point source effects.

12 An example of how you manage lakes by
13 looking at non-point source effects is lake Erie. It
14 has a severe problem with eutrophication or excess
15 nutrients in the late 1960s and early 1970s. Well, you
16 don't tackle that problem by going to the lake, that
17 problem was tackled by taking phosphates out of
18 detergents which is basically going at it from a
19 non-point source effect.

20 Q. Could you briefly explain to the
21 Board how watershed processes affect lakes?

22 A. When we're looking at a lake one of
23 the first things we do is ask: Where did the water in
24 the lake come from. Now, ultimately all the water in a
25 lake comes from either rain or snow, but for most lakes

1 very little of the water in the lake comes from direct
2 deposition of rain on the lake surface, the vast
3 majority of water in most lakes comes from the
4 catchment, the area surrounding the lake, or in some
5 cases from groundwater.

6 That means that the water that's in the
7 lake has been affected by reactions with vegetation,
8 soils, processes in upstream lakes, perhaps wetlands if
9 there are wetlands in the catchment, and of course
10 direct inputs of pollutants can also have an effect.

11 An example I can give you is from the
12 acid rain area. Throughout most of southcentral
13 Ontario the pH, which is one measure of acidity, of the
14 rain is around 4.2, now that is quite acidic, it's so
15 acidic that there are virtually no normal aquatic
16 organisms that could live in pH of 4.2. But when you
17 look at the water chemistry of lakes in southern
18 Ontario you find that there are very few that have a pH
19 that low.

20 Now, something's happened to modify the
21 chemistry of the rain and that something is a complex
22 series of chemical reactions involving vegetation,
23 various layers in the soil, perhaps interaction with
24 bedrock, mixture with groundwater and it has modified
25 the pH of the rain so that, in fact, most lakes have a

1 much higher pH. And in order to understand that issue
2 you've got to understand those processes.

3 Q. How do timber management activities
4 affect lakes?

5 A. Well, in a number of ways. The Board
6 has heard a lot about direct effects from activities
7 close to a lake or a stream. This can include erosion,
8 introduction of debris, several effects associated with
9 road building.

10 But there are effects that act at the
11 lake catchment level as well and, in that sense, trees
12 act like sinks. They're sinks for things that they
13 need to grow, they're sinks for water, and they're
14 sinks for the nutrients that they need.

15 In a very simple sense, if you take the
16 trees off a lake catchment you've removed that sink and
17 what would ordinarily end up in the trees will end up
18 in the lake because it isn't intercepted by something
19 else.

20 Q. Mr. Neary, what is your experience in
21 respect of watershed processes?

22 A. Well, as I said understanding these
23 watershed processes I think is essential for
24 understanding lakes. My formal education was in
25 chemistry and I spent three years in our acid rain

1 office.

2 Now, my job there was -- my job title was
3 technical advisor and my duties included keeping up to
4 date on all of the scientific literature as it related
5 to acid rain, that included effects, it included how
6 acid rain is transformed in the atmosphere, what
7 happens to it in lakes, how it affects lakes, lake
8 biota and terrestrial interactions as well.

9 One of the big controversies at that
10 time, and I think it's fair to characterize it as a
11 controversy still, is how acid rain affects forests,
12 both directly on plants and various processes in the
13 watershed.

14 I was also chairman of what was called
15 the Science Committee. Now, this oversaw the technical
16 direction of all of the acid rain activities in the
17 province and the main studies that were going on were
18 related to aquatic effects and terrestrial effects.

19 Some of the terrestrial effects that we
20 were looking at were called biogeochemical studies and
21 direct impact on forest health, and for me to be
22 effective as chairman of that technical committee I had
23 to understand the details of those programs, and that
24 meant understanding the literature associated with all
25 of those.

1 Now, biogeochemistry is something I don't
2 know that you have been exposed to, but it is a term
3 that refers to the chemical reactions, both biological
4 and geological in a watershed, and that biogeochemistry
5 program is still going on and is occurring at the
6 Dorcet Research Centre. Some of our intensively
7 studied lakes we also look at the biogeochemistry of
8 those watersheds.

9 And since I started at the acid rain
10 office, which would be in 1982, I've read literally
11 hundreds of articles on how the nutrient cycle and
12 hydrologic cycle of forested catchments work, how
13 timber management activities affect water quality and
14 quantity, and processes within the watershed too.

15 Now, since I moved to the Dorcet Research
16 Centre in 1985 I've been involved in studies on many
17 topics. One of the active areas that we're involved in
18 is the use of mathematical models to predict what
19 lakeshore development does to a lake.

20 So, in other words, the question is:
21 You've got a lake and you want to add "x" cottages on
22 it, what's that going to do to the lake. And to do
23 that we have developed models that will allow you to
24 predict that. And one of the things that you routinely
25 consider is what's going on in the watershed level.

1 what's going the geology of the watershed, is it
2 forested, is it not forested; if it is forested, what
3 proportion is forested, because all of that bears on
4 what's the nutrient export from the watershed is, and
5 it's just, you know, a routine consideration.

6 Another type of study that I've been
7 involved in is the construction of what are called
8 nutrient budgets. Now, I work on nutrients budgets in
9 lakes. Two of the lakes that we're currently working
10 on are two of the Kawartha lakes, Sturgeon Lake and
11 Rice Lake, and in order to construct these nutrient
12 budgets you have to understand where nutrients come
13 from, where they go.

14 In the case of Rice Lake, for example,
15 there are huge amounts of aquatic plants that dominate
16 the lake, there are 70 square kilometres of plants in
17 this lake, and you have to understand the dynamics of
18 nutrients as those plants grow and senesce and how the
19 nutrients are moving around in the lake.

20 Q. And does that work give you an
21 understanding of the issues involved in the area of
22 nutrient cycling?

23 A. Yes, it does, because many of the
24 processes that I work with on the aquatic side are very
25 similar to those on the terrestrial side.

1 Of course there are differences, but the
2 concept of a nutrient budget is the same whether you're
3 looking at a forest ecosystem or whether you're looking
4 at a lake. You've got to identify sources of
5 nutrients, you've got to identify sinks or outflows of
6 nutrients, you have to identify areas where nutrients
7 are stored, and you have to get a handle on the rates
8 at which nutrients are transferred from one storage
9 compartment to another, the rates at which they come
10 in, and the rates at which they exit the system.

11 Now, obviously between a lake and a
12 forest ecosystem there are significant differences.
13 For example, in lakes you're not concerned about lack
14 of moisture as a growth limiting factor and typically
15 the nutrients that limit growth in aquatic systems are
16 different from the ones that limit growth in
17 terrestrial systems, but you're dealing with the same
18 plant nutrients. It's the same in lakes, it's the same
19 in forests, it's the same in your lawn, you know, the
20 basic nutrients are the same.

21 And so although the mechanisms may be
22 different, the principles involved are pretty the same.

23 Q. What experience, Mr. Neary, have you
24 had in respect of issues relating to timber management?

25 A. Well, in 1986 and 1987 I was one of

1 the Ministry of the Environment representatives at the
2 ESSA workshops, which I think the Board has heard
3 described, to develop strategies to test the
4 effectiveness of the fisheries guidelines.

5 This involved modeling the effects of
6 timber management activities on water quality,
7 quantity, or the alteration of fish habitat. It also
8 involved looking at what was going on in the watershed
9 because you can't understand what's going on in the
10 water coming out of these watersheds unless you do have
11 that understanding.

12 I've continued in that capacity, advising
13 them on the design of that effectiveness study to look
14 at the fisheries guidelines. Most recently I attended
15 a workshop in September at Quetico looking at the
16 experimental design.

17 I've negotiated with MNR some of the
18 provisions of their policy which guide the application
19 of those fisheries guidelines, I've done technical
20 review of the Class Environmental Assessment Document,
21 I've reviewed several of the silvicultural guides and
22 the guidelines for roads and water crossings.

23 I've read much of the evidence of the
24 other major parties: MNR, OFIA, Forests for Tomorrow,
25 and the OFAH/NOTOA Coalition as it relates to the

1 environmental effects of timber management, and I've
2 had quite a bit of contact with MNR on -- other contact
3 on timber management issues.

4 I'm the MOE contact person on the study
5 involving the impact of full-tree harvesting and
6 full-tree chipping on long-term site productivity, and
7 I understand that the design of the study which looks
8 at the effectiveness of the fisheries guideline is
9 based, in a fairly large part, on an experimental
10 design a co-worker and I worked up a number of years
11 ago which included looking at watershed processes.

12 I've given advice to MNR on water quality
13 issues as it relates to timber management, I've given
14 advice to the MOE Environmental Assessment Branch on
15 bump-up requests or other areas of concern in timber
16 management involved, and I was an advisor to the
17 Ministry of Natural Resources team that prepared the
18 video that goes along with the Code of Practice in
19 Riparian Areas.

20 Q. Have you written any papers or given
21 any talks that relate to the issues that you address in
22 your evidence?

23 A. Well, in my -- actually in response
24 to one of the MNR interrogatories there's a copy of a
25 paper I was co-author on with the thrilling title:

1 Validation and Use of Ontario's Trophic Status Model
2 for Establishing Lake Development Guidelines, and it
3 just gives an example of how you take into
4 consideration the nature of the watershed and the
5 proportion of it that is forested in calculating or
6 modeling the nutrient levels in lakes.

7 I do this type of watershed level
8 modeling fairly routinely. A lot of it's unpublished
9 and is done just in support of other Ministry programs.

10 In terms of talks, I gave a talk called
11 Water Management Implications in Forestry and Wetlands
12 to the Soil and Water Conservation Society and Canadian
13 Water Resources Association Seminar in 1990 looking at
14 the water quality and quantity implications of timber
15 management practices, and I've also given talks to MOE
16 senior management at our annual water resources seminar
17 and to staff from our northeast region on the same
18 topic.

19 Q. Now, Mr. Neary, you said that your
20 experience with terrestrial nutrient cycling began when
21 you were at the acid rain office. What was your
22 experience before that?

23 A. Well, my formal education is in
24 chemistry and I was hired originally as a chemist by
25 the Ministry of the Environment in 1972.

1 I've worked as an analytical chemist at
2 the Laboratory Services Branch for the MOE in Rexdale.
3 I supervised a lab responsible for the analysis of
4 metals in water biological samples, sentiments in
5 soils, and it was in my capacity as a chemist that I
6 became involved with the acid rain issue and really
7 much of what I'm going to be talking about in terms of
8 nutrient cycling is chemistry.

9 MS. SEABORN: Madam Chair, we're asking
10 that Mr. Neary be qualified as an expert in watershed
11 ecology with particular expertise in looking at the
12 interactions of air, terrestrial and aquatic processes.

13 MR. FREIDIN: Interaction of...?

14 MS. SEABORN: Interaction of air,
15 terrestrial and aquatic processes.

16 MADAM CHAIR: Could you repeat that
17 please, Ms. Seaborn?

18 MS. SEABORN: Yes, Madam Chair. We're
19 asking that Mr. Neary be qualified as an expert in
20 watershed ecology with particular expertise in looking
21 at the interactions of air, terrestrial and aquatic
22 processes.

23 MADAM CHAIR: All right, thank you. Any
24 objections, Mr. Cassidy?

25 MR. CASSIDY: Madam Chair, am I correct

1 then - and perhaps this question can be addressed to
2 Ms. Seaborn - that it is not proposed that Mr. Neary be
3 qualified as an expert in nutrient cycling with
4 particular respect to the effect of intensive logging
5 on site productivity?

6 MS. SEABORN: Well, Mr. Cassidy, if
7 you're suggesting that the qualification would not --
8 the qualification that I'm asking for would not enable
9 Mr. Neary to give that testimony, you're wrong.

10 It's our submission that nutrient cycling
11 and the issues that are addressed in Mr. Neary's
12 evidence are merely a subset of the expertise that we
13 have asked Mr. Neary to be qualified in.

14 So, no, we would -- this qualification
15 that we're requesting from the Board would obviously
16 cover all the matters that Mr. Neary addresses in his
17 witness statement.

18 MR. CASSIDY: Ah.

19 MR. FREIDIN: Perhaps I should just
20 comment. Madam Chair, I was listening very carefully
21 to that examination and, in my submission, the concern
22 that I raised earlier still exists and, in my
23 respectful submission, the evidence clearly qualifies
24 Mr. Neary as a chemist and a limnologist.

25 He indicated that basically his

1 understanding in relation to that chemistry is to
2 determine the effect on lakes. He indicated that he
3 has to understand basically where these chemicals come
4 from which enter the aquatic environment, and that is
5 his involvement in that area. He indicated that he
6 must look at the interactions of the water which falls
7 as rain, the bedrock and that sort of thing to
8 understand those issues and how it might affect water
9 or water quality.

10 When asked about his expertise and his
11 involvement in relation to timber management - this is
12 where he got into the issue of biogeochemistry - he
13 indicated that he had read hundreds of articles
14 regarding how nutrient -- about nutrient cycling and
15 hydrologic cycles, but he then indicated that that
16 allowed him to understand how timber management affects
17 water quality and quantity.

18 In my respectful submission, the witness
19 has not given any evidence to indicate that he has any
20 expertise to comment on the relationship between that
21 chemical reaction, which I acknowledge he has expertise
22 about, and its effect on site productivity. I do
23 accept his qualifications to discuss nutrient cycling
24 and its effect on the aquatic environment.

25 I've raised this concern because of the

1 issue before the Board obviously regarding the effect
2 of various logging methods on site productivity is an
3 important issue.

4 Mr. Neary has not only given evidence in
5 his witness statement regarding this matter, but he has
6 gone sort of a step further, and if you look at the
7 witness statement on pages 6 and 7 he reviews the
8 evidence given by various experts which have appeared
9 before this Board and who have given evidence regarding
10 nutrient cycling and its effect on site productivity.

11 You will recall the evidence, Madam
12 Chair, of those witnesses, in particular their
13 qualifications. You had Professor Armson who is an
14 expert in terms of silviculture and is a soil
15 scientist. His area of expertise in fact is directly
16 related to that, the relationship between the nutrient
17 cycling within the soil and its effect on site
18 productivity.

19 Dr. Metham from the University of New
20 Brunswick was similarly qualified, and Dr. Hutchison
21 also for Forests for Tomorrow spoke about that matter.

22 Mr. Neary is not only giving evidence
23 about a similar subject matter or wishes to do so, but
24 he has, with respect, set himself up as someone
25 qualified to comment on which of those soil scientists

1 gave the best evidence and, therefore, which
2 scientists' evidence should be accepted by the Board.

3 The closest I would suggest that Mr.
4 Neary has come to indicating an understanding of the
5 relationship between nutrient cycling and site
6 productivity is that he indicated -- well, the question
7 was -- I'm sorry.

8 He was talking about the concept of
9 nutrient budgets as being the same, that he has to
10 identify the sources of nutrients, where they are
11 stored, the sinks or where they're taken up, and the
12 rates at which nutrients are stored and exit.

13 Well, I would respectfully submit that
14 notwithstanding Mr. Neary may have an understanding of
15 those processes, it's the understanding of the linkages
16 between that, those facts and its effect on site
17 productivity which is at issue here.

18 In my respectful submission Mr. Neary has
19 not given any evidence to suggest that he is an expert
20 or is trained even in that particular relationship and,
21 for that reason, I would submit that he not be
22 qualified to give evidence regarding the effect of the
23 these various logging methods on site productivity as
24 opposed to its effect on the aquatic environment.

25 MR. CASSIDY: I would support my friend's

1 comments, Madam Chair.

2 MR. MARTEL: Could you hold it just one
3 moment, I'm just trying to -- could you just repeat
4 that. The logging methods -- you said he's not trained
5 as an expert to give evidence on the logging methods --

6 MR. FREIDIN: The effect of logging
7 methods on site productivity.

8 MR. MARTEL: Okay, thank you.

9 MR. FREIDIN: In a nutshell, Mr. Martel,
10 there's no question that the factors that Mr. Neary
11 referred to have an effect on what nutrients stay on
12 the site and which ones don't, where they may go and
13 how they may leave the sites, but to give evidence that
14 the facts in relationship to all of that does or does
15 not affect site productivity, is a whole different
16 science.

17 He must understand that relationship, as
18 I understand his evidence, to figure out how much gets
19 into the aquatic environment and how it might affect
20 the aquatic environment either going through
21 groundwater, surface water and it gets into receiving
22 water bodies. That's a different process than what
23 happens with all that reaction and how much gets -- how
24 it affects the ability of vegetation and, in
25 particular, trees to grow on the site.

1 MR. CASSIDY: As I indicated very
2 briefly, Madam Chair, I support my friend's position in
3 that it is the OFIA's view and submission to you that
4 Mr. Neary is not qualified to give evidence that is
5 offered with respect to nutrient depletion, which is
6 found on pages 6 and 7 all the way through to pages 11
7 entitled MOE position 1(a) on nutrient depletion. The
8 gist of that evidence appears to be the concerns
9 regarding long-term site productivity which is found in
10 the third paragraph on page 6.

11 It is not a question of water management
12 that the MOE is here before you on, as I understand it,
13 from this evidence, and with the greatest of respect to
14 Mr. Neary, while he may be qualified with respect to
15 water management - and we take no issue with respect to
16 that - he's not so qualified with respect to site
17 productivity and the apparent concern that the Ministry
18 has with respect to intensive logging methods,
19 including full-tree chipping which is discussed on page
20 11.

21 As I indicated, I would take no issue
22 with respect to his qualification with respect to
23 acidification, which is apparently discussed from issue
24 1(b) on, and although it may be closely related to
25 nutrient depletion, it is not the same as site

1 productivity and we see no evidence in his background
2 to suggest that he has ever done anything with respect
3 to site productivity, either study it.

4 We all have read several articles in the
5 course of this hearing on nutrient depletion, but none
6 of us purport to be experts just by virtue of following
7 this process.

8 I respectfully submit that unlike some of
9 the people who have been discussed by Mr. Freidin and
10 unlike several of the scientists whose material you've
11 read, such as Morrison and Smythe from the Canadian
12 Forestry Service, one could not presume that Mr. Neary
13 is qualified.

14 The effect of that, I submit, is that Mr.
15 Neary not be permitted to give evidence with respect to
16 those pages I have referenced in the MOE material and I
17 submit that the Ministry should be required to move
18 directly to its issue 1(b), unless it can produce
19 another expert accordingly.

20 MR. FREIDIN: Can I have one moment,
21 Madam Chair?

22 No further submissions.

23 MADAM CHAIR: Ms. Seaborn?

24 MR. LINDGREN: Madam Chair, perhaps
25 before Ms. Seaborn makes her submissions I should

1 indicate the position of FFT on this particular
2 objection.

3 In a nutshell, we do not support the
4 objections raised by Mr. Cassidy and Mr. Freidin. In
5 my view, Mr. Neary's CV and his testimony both indicate
6 considerable experience in resource protection issues
7 and environmental impact assessment. He's gone on to
8 briefly describe what I consider to be a fair amount of
9 experience dealing with nutrient depletion, nutrient
10 budgets and so forth.

11 For those reasons, FFT submits that Mr.
12 Neary is properly qualified to give opinion evidence on
13 those issues.

14 I would respectfully submit that if my
15 friends do have concerns about the sufficiency of his
16 experience, then the proper course of action is to
17 raise that through cross-examination and make
18 submissions to you at the end of the day that Mr.
19 Neary's evidence should be given little or no weight.

20 In a nutshell, Madam Chair, these kind of
21 objections go to the weight of the evidence and not its
22 admissability.

23 MS. SEABORN: Thank you, Madam Chair.

24 Madam Chairman, reviewing the transcript
25 from the scoping session I was somewhat surprised that

1 Mr. Freidin referred to Mr. Neary as someone we are
2 putting forward as a fisheries biologist. Mr. Neary is
3 a chemist, he understand nutrients. You can't grow
4 things unless you have nutrients.

5 Now, he has considerable expertise with
6 these nutrient processes. He has given testimony to
7 the Board that he regularly undertakes a study called a
8 nutrient budget and he's also told the Board that a
9 nutrient budget is, in his opinion, similar for a lake
10 as it is for a forest.

11 He indicated to you that he has
12 experience in identifying the sources of nutrients,
13 sinks of nutrients and places where they're stored and
14 the rates at which they cycle.

15 Now, I would also like to submit that Mr.
16 Neary is qualified to give expert opinion evidence
17 because an understanding of nutrient cycling involves
18 little more than an understanding of chemical
19 processes. As Mr. Neary indicated he is a chemist.

20 He's provided an example of a paper that
21 he's written that talks about the proportion of the
22 catchment which is cleared of the forest -- I'm sorry,
23 about how the proportion of the catchment which is
24 cleared of forest affects the export of nutrients.

25 He's provided advice to MOE and MNR in

1 respect of water quality issues, but he's also
2 identified as the MOE contact person to look at the
3 design and contents of the forest growth and renewal
4 study in relation to full-tree harvest and full-tree
5 chipping.

6 And, quite frankly, until the scoping
7 session last week there was never any indication from
8 MNR that Mr. Neary was not the appropriate person when
9 he was identified by MOE as being the interministerial
10 person to be contacted on that matter.

11 Now, Mr. Freidin raised the objection
12 about Mr. Neary making a judgment with respect to the
13 evidence of Mr. Armson, Dr. Metham as well as Dr.
14 Hutchison.

15 I would like to make it clear that it's
16 quite appropriate for a witness to come before the
17 Board and express an opinion with respect to evidence
18 that has previously been filed with the Board and what
19 Mr. Neary's bottom line on this issue is not a
20 preference for Mr. Armson or Mr. Hutchison or anyone
21 else's evidence on this matter, what he is stating is
22 that there is conflict on this issue, and that I think
23 is made abundantly clear in Mr. Neary's written
24 testimony.

25 He is not making a judgment with respect

1 to the evidence that they have given to the Board, he
2 is telling the Board that there is a conflict on this
3 matter and, in my submission, that's a perfectly
4 acceptable role for someone such as Mr. Neary to play
5 in this hearing.

6 Now, any suggestion that one needs to be
7 a forester to understand nutrient cycling as it relates
8 to the forest is, in my submission, just plain wrong.

9 And the final submission I have with
10 respect to this matter is following up from what Mr.
11 Lindgren said, is that if the Board does have any
12 concern about Mr. Neary's qualifications, then I submit
13 you can address that concern when you're deciding the
14 weight to be given to his evidence.

15 That has been the usual practice in this
16 hearing and I don't believe there's been one witness
17 brought before you, of the hundreds you have heard
18 from, who has not been permitted to proceed with his or
19 her testimony and, in my submission, it would be most
20 unusual for you not to allow a witness such as Mr.
21 Neary to give evidence before you today.

22 Now, if the Board would like me to
23 continue, I can refer the Board to some of the law on
24 this matter, but those are my submissions in response
25 to Mr. Cassidy and Mr. Freidin.

1 MADAM CHAIR: Thank you, Ms. Seaborn.

2 Do the parties have anything to add?

3 (no response)

4 ---Discussion off the record

5 MADAM CHAIR: The Board is prepared to
6 make an oral ruling on this matter now, and in the view
7 of Board we're going to accept Mr. Neary as a witness
8 in the areas he's been qualified in. We accept Ms.
9 Seaborn's submissions on this matter.

10 We are prepared to accept that Mr. Neary
11 has expertise in nutrient cycling, and that doesn't
12 seem to be disputed by either OFIA or the Ministry.

13 We are particularly sensitive to the fact
14 that this is a controversial area. MNR has taken the
15 initiative of proposing that studies be done on the
16 effects of intensive logging practices on the long-term
17 productivity of a site. And we are prepared to accept
18 Mr. Neary's evidence. His written evidence certainly
19 is pointing out that there is conflict on this matter.

20 We understand that the Ministry of the
21 Environment wishes to take a more cautious approach to
22 the issue of full-tree logging and long-term site
23 productivity. We have their proposal in front of us.

24 We really see no reason why we can't
25 accept Mr. Neary's evidence on this matter, and so

1 we're going to accept him as having expertise in
2 watershed ecology with particular expertise in looking
3 at the interactions of air, terrestrial and aquatic
4 processes.

5 We understand that you're not a forester,
6 Mr. Neary.

7 MR. NEARY: No.

8 MADAM CHAIR: And we will be looking very
9 carefully at your evidence as it's tested in
10 cross-examination.

11 So shall we go ahead, Ms. Seaborn.

12 MS. SEABORN: Thank you, Madam Chair.

13 I would like to turn now to Mr. Bax.

14 Q. And, Mr. Bax, you're CV is filed
15 behind Tab 4 of the witness statement as well?

16 MR. BAX: A. Yes, it is, Ms. Seaborn.

17 Q. You hold a Bachelor of Science in
18 forestry from Lakehead University and a diploma in
19 forest technology?

20 A. Yes, I do.

21 Q. And what's your current position.

22 A. I'm the president of KBM Forestry
23 Consultants out of Thunder Bay.

24 Q. And what is the nature of the work
25 undertaken by KBM Forestry Consultants?

1 A. The focus of KBM's operations has
2 been in the implementation of silvicultural work in the
3 field, and that includes in particular such things as
4 site preparation, planting of seedlings, tending, and
5 seeding and other maintenance work.

6 KBM annually site prepares and seeds
7 approximately 3- to 5,000 hectares a year across the
8 area of the undertaking and we have planted over
9 50-million seedlings, we've site prepared about 50,000
10 hectares, and we've tended 3,000 to 4,000 hectares
11 since we've been in existence and that's approximately
12 19 years.

13 Q. And for whom does your company, Mr.
14 Bax, generally do work?

15 A. We do work for both Industry and the
16 Ministry of Natural Resources, a few private landowners
17 as well, but the bulk of the work is in those two
18 areas.

19 Q. And are you personally involved in
20 silvicultural work?

21 A. Yes, I am. My involvement in the
22 silviculture work would include, for example, viewing
23 the sites before we are contracted out to do the work
24 and that would include looking at -- determining if the
25 prescription that we are being contracted to carry out

1 can be done given the site overconditions, cut-over
2 conditions that are existing on the sites.

3 We carry out also one unique part of the
4 work, is we carry out regeneration and survival and
5 stocking surveys of the work across northwestern
6 Ontario and sometimes we have the opportunity to then
7 to go back to the work and do the surveys where we
8 actually carried out the regen or the renewal
9 activities, and so then we can determine and track the
10 effectiveness of the particular packages and sites that
11 we worked on and it builds up a good case study of what
12 works and what doesn't work.

13 I have also provided workshops on
14 silvicultural work which details the effect of forest
15 operations, all four: access, renewal, maintenance and
16 harvest, and then how they affect, in terms of costing
17 on projects, bidding, how do we carry out the work, how
18 do we -- the logistics involved depending on the impact
19 those activities have in the bush.

20 Q. Now, in the KBM work history tree
21 that was provided following your CV, you indicated that
22 the company has prepared five-year FMA reviews; is that
23 correct?

24 A. Yes, I have. We have -- KBM has been
25 involved in, they're actually second fifth year

1 reviews. In 1990 I carried out -- worked on the Gordon
2 Cosens Forest and the Iroquois Falls Forest in the
3 -Claybelt, and then in 1991 we did a review on the Black
4 River Forest and the Nipigon Forest of Manitouwadge and
5 out of Nipigon itself, and then in 1992 this year we
6 have been contracted with the Ministry of Natural
7 Resources to carry out three fifth year reviews, these
8 are first fifth year reviews for the Hearst Forest out
9 of Hearst of course, the Superior Forest out of
10 Chapleau, and the Lac Seul Forest out of Sioux Lookout.

11 Q. And were you personally involved in
12 the FMA reviews that you conducted to date?

13 A. Yes, I was. For the ones in 1990 and
14 '91, I was the silvicultural specialist and I was
15 charged then with the responsibility to determine if
16 the FMA holder was knowledgeable with the groundrules
17 of the agreement for that particular forest, and if the
18 harvest, renewal and maintenance activities that were
19 carried out conformed to those groundrules in the
20 timber management plan.

21 We also -- or I also looked at timber
22 management planning processes, the dates that, for
23 example, the various activities are reported on and the
24 contents of those reports.

25 I also looked at NSR or not

1 satisfactorily regenerated sites obligations, and then
2 finally the relationship between free to grow, between
3 harvest and the free to grow assessments, were they
4 really working.

5 This past Saturday I was just in Hearst
6 where I chaired an open house to receive public
7 comments and input on the TM of the Hearst Forest. At
8 the same time I had an opportunity, so we met with the
9 public, I met with the stakeholders committee for that
10 particular forest, and they also had an information
11 session for the TMP itself. So you get an opportunity
12 to receive the input from those various sectors that
13 are intricately involved, of course, in that particular
14 area and get an understanding of their concerns. And
15 that's part of the process of course.

16 Q. Mr. Bax, you've been involved in a
17 number of professional associations related to
18 forestry.

19 A. Yes. I've been a member of the
20 Ontario Professional Foresters Association since I
21 graduated. I've been a member of Council for the OPFA
22 and I also served as president for the OPFA in 1985 and
23 '86.

24 I was a member of the advisory committee
25 to the Lakehead School of Forestry -- the school of

1 forestry at Lakehead. And, again, I've been on that
2 committee since its inception. I believe -- I think
3 I'm the only original member left on that particular
4 advisory committee.

5 I'm a member of Canadian Institute of
6 Forestry across Canada here and the Society of American
7 Foresters from the States as well and the Canadian Pulp
8 and Paper Association.

9 Q. And in what part of the province is
10 your experience in respect of forestry?

11 A. It's been in northern Ontario, of
12 course, primarily the boreal forest, but I've worked
13 across Ontario in the Great Lakes/St. Lawrence as well
14 on both sides of the boreal, if you will.

15 I've worked and lived in Thunder Bay
16 since university and I've also worked in the southern
17 pine areas of the U.S. For about three years we had an
18 office down there we were involved in viewing,
19 prescribing sites for various treatments and
20 activities, particularly on the renewal side, and I've
21 also had the opportunity to travel extensively into
22 Finland and Sweden over the past 19 years.

23 My firm, KBM Forestry Consultants,
24 introduced the first mechanical disk trencher that was
25 used here in Canada back in '85 and there's now a

1 - hundred of those particular units used in scarification
2 across Canada.

3 Another example would be that I've
4 brought over is we are the exclusive distributor for
5 photodegradable cones, which is a seeding method used
6 in renewal operations. So you get an opportunity to
7 see the technology of that occurs in another part of
8 the world and try to apply it to our conditions and
9 sites here in the boreal.

10 MS. SEABORN: Madam Chair, I'm requesting
11 that Mr. Bax be qualified to give expert opinion
12 evidence as a professional forester with particular
13 expertise in the boreal forest and as a silvicultural
14 specialist.

15 MADAM CHAIR: Are there any objections to
16 Mr. Bax' being so qualified?

17 (no response)

18 Thank you.

19 MS. SEABORN: Q. Ms. Dahl, you're CV has
20 also been filed behind Tab 4 of the witness statement?

21 MS. DAHL: A. Yes, it is.

22 Q. And what is your present position
23 with the Ministry of the Environment?

24 A. I am an environmental planner in the
25 provincial unit of the Environmental Assessment Branch.

1 Q. And could you briefly outline for the
2 Board what your duties and responsibilities are with
3 MOE?

4 A. They include advising provincial
5 ministries and agencies and the public on the
6 requirements of the Environmental Assessment Act,
7 providing advice to proponents who are preparing
8 environmental assessments on environmental planning and
9 preparation of environmental assessments.

10 I coordinate government reviews of
11 environmental assessment documents, review and comment
12 on draft EAs, review exemption order request
13 designations and bump-up requests, also reviewing
14 environmental study reports which are filed under Class
15 EAs of provincial ministries and agencies.

16 I liaise with other ministries and
17 agencies, the federal government, media, members of the
18 public with respect to the EA Act. Also had some
19 involvement in mediating resolutions to environmental
20 disputes and making presentations to proponents and the
21 public on the EA Act.

22 Q. Now, in your work for MOE as an
23 environmental planner, do you have any experience in
24 respect of timber management planning?

25 A. Yes. I actually started with the

1 Ministry six days after this hearing began and I've
2 been involved in timber management in one way or
3 another ever since then.

4 I work daily with the timber management
5 bump-up requests since 1988, of which there have been
6 22, dealing with the affected stakeholders and their
7 concerns, attempting to negotiate resolution to issues
8 and am also responsible for providing advice to the
9 Minister on how to handle these bump-up requests.

10 Since 1989 I've been more directly
11 involved in timber management by providing advice on
12 behalf of MOE in this hearing.

13 Q. And have you reviewed actual timber
14 management plans in connection with these designation
15 or bump-up requests you refer to?

16 A. Yes. I believe I've looked at the
17 timber management plans for all of the requests, some
18 of them in more detail than others depending on the
19 issues that are raised, but I am familiar with the
20 content, format, length of timber management plans and
21 the variability that exists between them.

22 Q. And do you have any experience in
23 respect of other Class EAs?

24 A. Yes, I do.

25 Q. What's the nature of that experience?

1 A. As I mentioned, I have been reviewing
2 environmental study reports filed under Class EAs of
3 provincial ministries and agencies. I coordinated a
4 review of post amendments to the Ministry of Natural
5 Resources Class EA for a fishery reclamation.

6 I took over as the review coordinator for
7 Ontario Hydro's Class EA for minor transmission
8 facilities. I am the designated review coordinator for
9 Hydro's Class EAs for modifications to hydroelectric
10 facilities and also for shoreline and river bank
11 improvements, and both of those are currently under
12 review.

13 I'm also assigned as the review
14 coordinator for the MNR Provincial Parks Class EA, and
15 I've provided input to the program development unit of
16 the Ministry -- sorry, the Environmental Assessment
17 Branch with respect to Class EA reforms.

18 And in 1989 I coordinated a meeting of
19 proponent ministries regarding the bump-up process.

20 Q. You've outlined your experience with
21 respect to Class EAs. What is your experience with
22 respect to environmental assessment generally?

23 A. I have provided advice to proponents
24 on a number of environmental assessments in the
25 presubmission consultation stage. I've reviewed a

1 number of draft environmental assessments and provided
2 comments with respect to environmental planning
3 requirements.

4 I have coordinated government reviews of
5 two major transmission line EAs, and I'm also currently
6 coordinator on several EAs which are in the
7 presubmission consultation stage. Generally I've
8 provided advice to proponents, the public, other
9 planners with respect to EA planning and process, and I
10 have also contributed to internal policy reviews and
11 proposals for EA reform and improvements to the
12 interpretation and application of the Act.

13 MS. SEABORN: Madam Chair, I would ask
14 that Ms. Dahl be qualified as an expert to give
15 evidence in environmental planning with particular
16 experience in environmental assessment.

17 MADAM CHAIR: Any objections to Ms. Dahl
18 being so qualified?

19 (no response)

20 All right. Thank you, Ms. Seaborn.

21 MS. SEABORN: Madam Chair, I intend to
22 proceed now with the evidence. I will be dealing first
23 with Mr. Neary's evidence followed by Mr. Bax and then
24 Ms. Dahl.

25 I expect that the questions for each of

1 the witnesses will probably take about an hour and a
2 half or so per witness, depending on questions from the
3 Board. So if we could proceed with Mr. Neary's
4 evidence.

5 Q. Mr. Neary, I understand you prepared
6 a series of overheads in respect of your evidence.

7 MR. NEARY: A. Yes, I have.

8 MS. SEABORN: And, Madam Chair, I would
9 ask that a document entitled Overheads Bernie Neary
10 dated April, 1992 be marked as the next exhibit. It is
11 a 20-page document.

12 MADAM CHAIR: This material will become
13 Exhibit 2203.

14 ---EXHIBIT NO. 2203: 20-page document entitled:
15 Overheads Bernie Neary.

16 MS. SEABORN: 2203.

17 MADAM CHAIR: That's right.

18 MS. SEABORN: Thank you.

19 Q. Mr. Neary, could you briefly outline
20 for the Board the issues that your testimony will
21 address today?

22 MR. NEARY: A. I would like to start off
23 by giving a little bit of an outline of MOE's
24 involvement in general in this process.

25 We've been involved by reviewing several

1 of the drafts of the EA prior to the amended 1987 one,
2 we've done the formal government review, participated
3 in the formal government review of that document, we've
4 participated in workshops, we've been involved in the
5 negotiation for guidelines and policies from MNR, we've
6 done a lot of review of oral and written evidence from
7 other parties, we participated in the negotiation
8 process involved with this hearing and, of course,
9 we've prepared evidence.

10 We've also reviewed many timber
11 management plans and we've dealt with bump-up requests
12 through the Environmental Assessment Branch.

13 Now, during all of this time a lot of the
14 original concerns of the Ministry of the Environment
15 have been addressed and my testimony speaks to some of
16 those that have not been addressed.

17 Now, my part of the Ministry of the
18 Environment evidence relates to adverse or potentially
19 adverse environmental effects associated with timber
20 management activities.

21 Q. Mr. Neary, just stopping you there.
22 For the record, this is overhead 1 from Exhibit 2203?

23 A. Sorry. Now, the first issue relates
24 to nutrient depletion and acidification associated with
25 intensive harvesting techniques.

1 The second issue I'm going to talk about
2 is operations on sensitive or fragile sites. And I
3 think it is fair to characterize those first two issues
4 as being fairly controversial or certainly lacking in
5 the consensus about the nature and severity of their
6 effect.

7 The third issue is a little bit
8 different, I don't think anybody argues about the
9 environmental effect, which is the introduction of
10 sediment into water courses. It remains an issue
11 because there is really no consensus about how to deal
12 with this problem operationally.

13 Q. Now, Mr. Neary, could you proceed
14 with issue 1(a) nutrient depletion.

15 A. Yes. On overhead 2 you will see what
16 we're calling issue 1(a). I've broken the first issue,
17 that of the potential effects of the wide-spread use of
18 intensive logging methods into two sub-issues, and
19 overhead 2 is the first of those.

20 Now, by intensive logging I'm referring
21 to the use of full-tree harvest and full-tree chipping
22 operations. The environmental effect here is the
23 excessive removal of nutrients from nutrient poor
24 sites, and what we're asking the Board to do is to
25 decide whether this is an acceptable practice.

1 It's an issue of concern to the Ministry
2 of the Environment because it may potentially degrade
3 the land base and it may also have an impact on the
4 duration of aquatic effects, both in terms of water
5 quantity and water quality.

6 Now, MNR is relying heavily on
7 regeneration as a means of mitigating a lot of these
8 effects, and on pages 10 and 11 - you don't have to
9 refer to it - I've cited several instances of that
10 reliance.

11 Now, this issue can be safely
12 characterized as there being no broad consensus about
13 it. There is no broad consensus about the nature of
14 the effect and there's no broad consensus about the
15 severity of the effect. There have been studies that
16 the Board have seen that claim that there will be no
17 long-term effect in terms of nutrient depletion, there
18 are other studies that claim that using intensive
19 logging methods will, in fact, produce an effect where
20 the next rotation or subsequent rotations will be
21 nutrient deficient.

22 Now, since the EA Document was first
23 prepared, these intensive logging methods have
24 increased widely in the extent of their application.
25 In the case of full-tree harvesting it's gone from 15

1 to 65 per cent or more in terms of popularity as a
2 logging method, and full-tree chipping is now being
3 used in the area of the undertaking and it may take
4 over full-tree harvesting as the most widely used
5 method.

6 MADAM CHAIR: Excuse me, Mr. Neary. We
7 had asked at the scoping session if there were any kind
8 of statistics or if we had any data at all about the
9 use of full-tree chipping.

10 MR. NEARY: Mr. Bax I think is prepared
11 to address that a little further on in the testimony.

12 MADAM CHAIR: Okay, good. Thank you.

13 MR. NEARY: In the direct evidence.

14 Now, overhead 3 has a couple of other
15 points about this issue 1(a). One is that it may
16 potentially impact on the sustainability of timber
17 harvesting. If you are removing more nutrients from a
18 site than can be replaced through weathering or
19 atmospheric input over the course of a rotation you are
20 eventually hampering or jeopardizing how sustainable
21 the activity is.

22 And the other point is that it is an
23 effect which may not be evident quickly. There may be
24 sufficient reserves of a material left on site
25 supplemented by weathering and other types of input

1 during the course, but you may not see any evidence of
2 nutrient deficiency until well along in the process,
3 either in one rotation or even in subsequent rotations,
4 it's not obvious immediately.

5 Now, on overhead 4 I've outlined the
6 elements of the Ministry of the Environment position.
7 Basically we're concerned about the effects of
8 full-tree harvest and full-tree chipping because of the
9 increased removal of nutrient bearing material from a
10 site when these logging methods are used.

11 There is uncertainty as to the nature of
12 this effect and the MOE suggests that we should proceed
13 with caution in this type of area if the consequences
14 of getting it wrong are significant. We think that the
15 consequences of jeopardizing the next rotation or
16 rotations thereafter from being fully productive are
17 significant enough that caution in this area is
18 warranted.

19 Now, this cautious approach is a fairly
20 common element in environmental regulation. One
21 example I can think of is, that when you're trying to
22 determine the acceptable level of a contaminant in food
23 or water, you typically apply a safety factor because
24 you understand that you don't know everything about it
25 and so you consciously error on the side of caution.

1 In terms of what the Board has been
2 hearing about, an example of this cautious approach can
3 be found in the policy which directs the application of
4 the fisheries guidelines. If you don't know the fish
5 community in a lake you proceed with caution by
6 assuming that it's a cold water fishery and treat it
7 like a cold water fishery which provides more
8 protection from logging activities than would be
9 received around cool water or warm water lakes.

10 MS. SEABORN: Madam Chair, I see it's
11 noon. Perhaps before we proceed to overhead 5 this
12 would be a convenient time to break.

13 MADAM CHAIR: All right. Thank you, Ms.
14 Seaborn.

15 We will come back at 1:30, and we will
16 sit today until -- Mr. Freidin, can you remind the
17 Board how long you think you'll be in
18 cross-examination.

19 MR. FREIDIN: A day.

20 MADAM CHAIR: A day. Mr. Cassidy?

21 MR. CASSIDY: Well, I anticipate about an
22 hour per witness which would roughly work out to half a
23 day. It may be less.

24 MADAM CHAIR: Okay. Mr. Lindgren?

25 MR. LINDGREN: Oh, we're not

1 cross-examining this panel, Madam Chair.

2 MADAM CHAIR: That's right, thank you.

3 Mr. Pascoe, could you remind us of other
4 parties who are cross-examining?

5 MR. PASCOE: The only one I'm aware of at
6 this point is Mr. Hanna which was between half a day
7 and a day.

8 MADAM CHAIR: Well, is it convenient for
9 you, Ms. Seaborn, if we sit until the normal time of
10 four o'clock today, or do you see any need to sit later
11 than that?

12 MS. SEABORN: I don't think so, Madam
13 Chair. I'm hoping that we will be finished the
14 evidence-in-chief by noon tomorrow at the latest. So I
15 think based on the estimates, we should still be able
16 to finish on Thursday.

17 Also Mr. Neary and Mr. Bax are from out
18 of town and we really would like to finish this panel
19 this week and not have them come back for next Monday.

20 MADAM CHAIR: We'll definitely finish
21 this week and if the parties think that we can
22 accommodate the original schedule of one week, then
23 we'll sit only until four this evening.

24 MS. SEABORN: I understand there's a
25 procedural session tomorrow and --

1 MADAM CHAIR: Tomorrow at four o'clock,
2 which would still give us Wednesday if we had to do
3 anything else with respect to lengthening the hours.

4 MS. SEABORN: Thank you for the offer.

5 MR. CASSIDY: Just on that note, Madam
6 Chair, I would really like to be on Wednesday and I
7 will be prepared, if necessary, to have my
8 cross-examination late in the day on Wednesday. If we
9 get in that situation, I'll make sure I'm in that
10 position.

11 MADAM CHAIR: All right, thank you, Mr.
12 Cassidy.

13 Mr. Hanna will be following you I guess,
14 Mr. Cassidy.

15 MR. CASSIDY: No, he goes before me.

16 MADAM CHAIR: Or he goes before you, of
17 course. All right. And, Mr. Pascoe, will Mr. Hanna be
18 prepared to start tomorrow after the lunch break?

19 MS. MANN: I'll find out for you by this
20 afternoon.

21 MADAM CHAIR: Thank you very much. You
22 can tell Mr. Hanna that it looks like, at the latest,
23 he'll be starting after lunch and he might want to be
24 here late in the morning in the event the
25 examination-in-chief is completed.

1 Thank you.

2 ---Luncheon recess taken at 12:05p.m.

3 ---On resuming at 1:30 p.m.

4 MADAM CHAIR: Please be seated. Go
5 ahead, Ms. Seaborn.

6 MS. SEABORN: Thank you, Madam Chair, Mr.
7 Martel.

8 When we broke for lunch Mr. Neary had
9 just gone through his overhead No. 4 and I ask Mr.
10 Neary now to address MNR's term and condition No. 85.

11 MR. NEARY: Madam Chair, Mr. Martel, what
12 we have been trying to establish was that there is a
13 fair bit of disagreement on the conclusions to be drawn
14 of the studies looking at the long-term impact of
15 intensive logging methods, and we're trying to come to
16 grips with what is the best way to proceed when you're
17 faced with that kind of uncertainty.

18 Now, on overhead 5 you'll see that the
19 Ministry of the Environment supports MNR term and
20 condition 85 which says that:

21 "MNR shall design and implement a study
22 pertaining to the effects of full-tree
23 harvest and full-tree chipping on
24 long-term forest productivity."

25 Obviously understanding the problem

1 better is a very rational way to proceed and you will
2 define the risks associated with this with more
3 resolution.

4 However, logging is occurring in Ontario
5 on over 200,000 hectares annually and, given the fact
6 that this type of study may take 15 or 20 years to
7 complete and an even longer period of time for
8 recommendations to be drawn and guidelines formulated,
9 we may be looking at 3- to 4-million hectares of land
10 logged by the time the results of these studies are in,
11 and the Ministry of the Environment and I feel that
12 that is unacceptable.

13 So we have proposed -- on overhead 6 we
14 have proposed that the Board consider adopting our term
15 and condition 21(c).

16 MS. SEABORN: Q. Mr. Neary, could you
17 explain how MOE arrived at the recommendations in term
18 and condition 21(c)?

19 MR. NEARY: A. Yes. The elements in
20 term and condition 21(c) are derived from the study
21 conducted by Timmer, Savinsky and Marek. This study
22 was filed with the Board as part of Ministry of Natural
23 Resources Panel 10.

24 Now, we relied on this study primarily
25 because the recommendations that arose from the study

1 were practical, they were formulated with a view to
2 normal application by MNR foresters.

3 Now, practicality has also led to some of
4 the wording in the introduction to the term and
5 condition where we only recommend that these
6 restrictions be applied to harvest areas greater than
7 eight hectares in area.

8 Now, ideally if you want to be purist
9 about it you would apply it everywhere, but there's
10 practicality in terms of area where you can't switch
11 equipment just for a very small pocket of land, and we
12 got the eight hectares from the timber management plan
13 where eight hectares is evidently the smallest area
14 where, if a renewal treatment fails, that retreatment
15 is considered practical.

16 Now, I'll describe how each of the
17 elements in the term and condition were arrived at.
18 The first is that tree length, cut to length, and
19 shortwood logging be exclusively used on shallow and
20 very shallow sites.

21 Now, for the purposes of our term and
22 condition we are using the definitions of very shallow
23 and shallow from the spruce silvicultural guide. They
24 define very shallow sites as those with less than 10
25 centimetres of mineral soil or less than 20 centimetres

1 of organic matter. Shallow sites are those with less
2 than 30 centimetres of soil over bedrock.

3 Now, the Timmer, Savinsky and Marek study
4 had predicted, based on their studies, that there would
5 be nutrient deficiencies on these types of sites as a
6 result of full-tree harvesting, and the likelihood of
7 nutrient deficiency on these shallow sites was related
8 just to the fact that you were dealing with a
9 physically limited volume of soil from which the trees
10 can draw their nutrients.

11 The second element is pretty well the
12 corollary of the first, where full-tree logging and
13 full-tree chipping operations are restricted to stands
14 supported by relatively deep mineral soils.

15 Now, the third provision recommends that
16 marginal sites which are sensitive to full-tree logging
17 or chipping be harvested in winter with snow present.
18 Again, the Timmer, Savinsky and Marek study had
19 observed that when harvesting during winter had
20 occurred there was greater breakage of foliage and
21 branches, nutrient bearing material, plus there was
22 less likelihood of other types of site disruption and
23 compaction because the ground was frozen.

24 MADAM CHAIR: Excuse me, Mr. Neary.

25 MR. NEARY: Yes.

1 MADAM CHAIR: For items 2 and 3 there's
2 no restriction on the amount of the harvest area.

3 MR. NEARY: No.

4 MADAM CHAIR: In other words, you can
5 do -- the eight hectares doesn't apply to it?

6 MR. NEARY: No. We just looked at eight
7 hectares as the smallest area where it would be
8 practical to consider using one type of logging
9 equipment over another. It's a planning
10 consideration--

11 MADAM CHAIR: Okay.

12 MR. NEARY: --and doesn't really tie in
13 to the size of the clearcut.

14 Now, by marginal sites we mean that these
15 are sites where you couldn't classify it with any
16 degree of confidence into either the shallow or
17 relatively deep based on variable soil conditions or
18 perhaps sites where there were cases of nutrient
19 limitation that weren't necessarily related to soil
20 depth.

21 Now, the fourth one calls for rapid
22 regeneration after full-tree logging or full-tree
23 chipping operations to accelerate nutrient capture and
24 site recovery, and I've been advised that that is just
25 good silviculture.

1 MS. SEABORN: Q. Mr. Bax, as a forester
2 could you verify that rapid regeneration is considered
3 good silviculture.

4 MR. BAX: A. Yes. I don't think you
5 would find too many foresters that would argue with
6 that.

7 MR. NEARY: A. Now, the fifth provision
8 says that the intensive short rotation forest
9 management be restricted to deeper more productive
10 sites.

11 The Ministry of Natural Resources has a
12 definition for what constitutes the biological optimum
13 rotation age, an explanation of it can be found in the
14 Forest Resources for Ontario, but basically it is
15 defined as the intersection of the curve of the current
16 annual increment and the mean annual increment and it
17 is defined as the biological optimum rotation age.

18 For the purpose of this term and
19 condition we would consider that rotation period
20 shorter than that be considered short rotation
21 forestry.

22 Q. Mr. Neary, have you looked at any
23 recent literature which would support MOE's position
24 with respect to this term and condition?

25 A. Yes. The Ministry of Natural

1 Resources earlier this year, as a matter of fact,
2 produced a review of the issues surrounding full-tree
3 harvesting. It was prepared by a man called Allen
4 Weinsczyk at their northwestern Ontario technology
5 development unit.

6 Q. Has that document been provided to
7 the Board?

8 A. Yes, it can be found in our source
9 book, our reference book behind Tab 7, and it reviews
10 much of the scientific literature on the subject of
11 full-tree harvesting.

12 But on overhead 7 I would like to call
13 your attention to one of the statements by Mr.
14 Weinsczyk which says that:

15 "The final and most effective means of
16 reducing the impact of full-tree
17 harvesting on site fertility and
18 long-term productivity may simply be to
19 minimize the use of this harvesting
20 strategy on sites which may be
21 susceptible to nutrient depletion.
22 This restriction of intensive logging
23 methods on these nutrient sensitive sites
24 or nutrient limited sites is obviously a
25 common sense approach to the problem."

1 Now, the second quote on this comes from
2 another document called MNR Directions '90'. It can
3 also be found in the MOE reference book behind Tab 3.
4 And this document, which is also published recently,
5 provides general policy direction for the Ministry of
6 Natural Resources, and we feel that one of the policy
7 principles enunciated in that document supports our
8 position that we should proceed with caution in this
9 area. And if I may quote from it:

10 "Our understanding of the way the natural
11 world works and how our actions affect it
12 is often incomplete."

13 I think that's clearly the case here.'
14 This means that we exercise caution and special concern
15 for natural values in the face of such uncertainty and
16 respect the precautionary principle.

17 Now, throughout this discussion we have
18 been talking not only about full-tree harvesting, which
19 the Board has heard quite a bit about, but full-tree
20 chipping with which the Board is perhaps less familiar.

21 Q. Now, Mr. Bax, have you viewed
22 full-tree chipping operations in the area of the
23 undertaking?

24 MR. BAX: A. Yes, I have.

25 Q. And as a professional forester can

1 you describe for the Board how full-tree chipping
2 differs from full-tree harvest?

3 A. Well, there's really no difference in
4 the two methods during the actual cutting of the tree,
5 both methods we use feller bunchers with a cable and a
6 grapple skidder to forward it or a feller buncher to
7 take it to the roadside and the entire tree is removed
8 above the roots and transferred to the landing in that
9 way.

10 Q. And is there a difference after that
11 stage?

12 A. Yes. In full-tree harvesting, the
13 limbs are removed by a delimbing deadvice and the bole
14 or the trunk of the tree then is loaded, or is cut to
15 about a 1-inch or 2-inch top diameter and then loaded
16 on the truck to be hauled to the mill for further
17 processing. Sometimes logs can be slashed at the
18 roadside before it's loaded or sometimes it can be
19 loaded full length.

20 In full-tree chipping though the tree is
21 fed into a chipper, again, at the roadside and the wood
22 fiber which would include fiber from the entire bore as
23 well as the usable fiber in the branches is separated
24 and blown into a chip van usually and then hauled away
25 to the -- further processing at the mill.

1 Q. And, in your opinion, is there a
2 difference in the appearance of the site after being
3 logged by full-tree harvest version full-tree chipping?

4 A. Yes. In full-tree harvest many of
5 the smaller diameter trees are left on the site as are
6 trees of less marketable species, for example.

7 One of the biggest differences too,
8 there are large piles of slash which is the tops of
9 branches that aren't utilized, of course, and they are
10 left at the roadside or the landing.

11 But after full-tree chipping the slash
12 piles are much reduced, much smaller, they usually just
13 contain the residual fines and needles that were left
14 after the entire tree was chipped. And there's also --
15 so that's right at the roadside.

16 There is also quite a difference in what
17 the cut-over looks like between the two, again. In
18 full-tree chipping operations, for example, many of the
19 smaller diameter trees can be utilized because they, of
20 course, also contain marketable fiber in that the chips
21 can recover that marketable fiber and trees of less
22 desirable species or different species again can also
23 be taken and mixed with the chips of the more desirable
24 species.

25 Site conditions after chipping operations

1 do have advantages for renewal operations. For one
2 thing, as I indicated earlier, the slash piles occupy a
3 lot less area and that's a big advantage. For example,
4 when we come in afterwards and do site preparation with
5 the full-tree harvesting we have to pile the branches
6 up with the skidders and pile them into big piles so
7 that they can be burned, and that can take up still a
8 fair amount of area in the landing; whereas with
9 full-tree chipping those piles are much diminished
10 because they're just the residuals and fines. So that
11 is one significant difference.

12 And, again, on the site itself usually
13 there's fewer trees left with full-tree chipping as
14 opposed to full-tree harvesting. So, again, for
15 example, site preparation is easier, planting is
16 easier. Most operators or planters love to go on
17 full-tree chipped sites because they are by far the
18 easiest to work in in the sense that all that material
19 is removed.

20 Q. Mr. Bax, when you say that trees of
21 smaller diameter can be used if the full-tree chipping
22 method is used, what do you mean by that?

23 A. Well, by smaller diameter sometimes,
24 you know, you can take younger trees, they're are not
25 as big as opposed to, you know, those that would

1 ordinarily be considered in full-tree harvesting.

2 Even though they don't have much in the
3 way of, for example, large diameters they still have
4 usable fiber and are worthwhile to chip. And these
5 smaller trees could sometimes include advanced growth
6 maybe if they're big enough, and then it also means
7 that trees on an area with poor growth, sometimes again
8 they're smaller because they simply grow poor, again,
9 could be chipped -- cut and chipped because, again,
10 they contain usable fiber.

11 Because you're getting more fiber from
12 the site per unit area with the full-chipping method,
13 and of course that's one of the reasons we're going to
14 full-tree chipping, is that stands with poorer stocking
15 can also be considered for harvest because, again,
16 you're able to obtain all the fiber that's on the site.

17 So even though you get more -- even
18 though you have fewer trees you can still get more
19 fiber per unit area comparing the two methods.

20 Q. Do you consider that difference
21 significant?

22 A. Yes, I do. You know, considering my
23 experience with renewing the sites, especially after
24 logging with the two different methods, I consider them
25 different.

1 After full-tree chipping, as I indicated
2 earlier, you don't have large slash piles to contend
3 with and usually the site is much cleaner, there's a
4 lot less trees which you have to contend with.

5 Behind Tab 1 in our source book are the
6 minutes of the workshop on a CPPA meeting which was
7 held in Thunder Bay, and that's --

8 Q. Do you just want to wait for a
9 minute, Mr. Bax, while people turn to. That's Tab 1 of
10 Exhibit 2200(b)?

11 A. Yes. This was the minutes from a
12 meeting held in Thunder Bay, Ontario in June of 1991,
13 last year, and on pages 5 and 6 -- especially page 5
14 dealing with the central section which is where the
15 area of the undertaking is included in, there are bar
16 charts, if you will, looking at the different
17 harvesting systems.

18 Full-tree harvest with logs removed,
19 which is called full-tree roundwood is distinguished
20 from the full-tree chipping or chips as it's called.

21 And then on page 8 of the same document,
22 again, it contains an excerpt from the logging
23 operations report and in Table 4 at the top of that
24 page and again in the bar chart at the bottom of the
25 page chipping is distinguished from full-tree in both

1 places.

2 And I guess the point I'm making there
3 operationally it's, you know, considered different in
4 these type of reports as well.

5 Q. Mr. Bax, during the scoping session
6 for this panel and earlier this morning the Board
7 indicated that it was interested in knowing the extent
8 to which full-tree chipping is taking place in the area
9 of the undertaking.

10 Can you provide any information in
11 respect of that question?

12 A. I would start again with these same
13 minutes. On page 2 towards the bottom of the page
14 under Section 3.2 full-tree harvesting, the statement
15 is made from the discussion on the floor that:

16 "Chipping in the bush is projected to
17 increase significantly..." and then in
18 brackets,

19 "... (it could be as high as 60 to 70 per
20 cent."

21 And also further on in the report, again,
22 the logging operations report that the CPPA puts
23 together indicates I think from their -- the member
24 company reports that by 1989, I believe, it indicated
25 that 12 per cent of all the wood harvested then was

1 done by full-tree chipping.

2 So the trend seems to be it's going to
3 increase and the forecast from the member companies
4 also would seem to feel that it's going to increase
5 significantly, and through conversations with logging
6 contractors in my particular area too I know quite a
7 few of them are considering looking at full-tree
8 chipping systems for their logging operations.

9 MR. MARTEL: Well, at a time when it's
10 not known what the consequences of removing full tree
11 and all the slash is, why are we moving in this
12 direction then?

13 MR. BAX: Well, I believe it's for the
14 reasons indicated. They're getting -- they're able to
15 obtain more usable fiber per unit area. I think some
16 of the --

17 MR. MARTEL: Without knowing the effects
18 though.

19 MR. BAX: Well, they're interested in the
20 fiber first and foremost because that's what keeps the
21 mill going.

22 MR. MARTEL: Yes, but MNR should be
23 interested in more than just the fiber.

24 MR. BAX: Well, this is minutes from the
25 CPPA/FERIC.

1 MR. MARTEL: Yes, I understand that, but
2 I'm simply saying the overall --

3 MR. BAX: Well, I think this is what
4 we're trying to point out in our evidence, if it's
5 going to have such a significant increase then it's
6 something we should be well aware of and approach
7 cautiously.

8 MS. SEABORN: Q. Mr. Bax, are there any
9 other differences you can think of?

10 MR. BAX: A. Well, the only other
11 difference I would think would be at the mill end
12 itself. If by full-tree chipping, for example, they
13 can remove that processing that occurs at the mill
14 rather than move it to the forest, then again I believe
15 it is the intention that the woods room, for example,
16 in some of the major mills would no longer be necessary
17 and that would certainly have, you know, an impact in
18 terms of jobs, those jobs being removed from the mill
19 site. So there's the social -- in terms of employment
20 factor as well.

21 Q. Thank you, Mr. Bax.

22 MADAM CHAIR: Excuse me, Mr. Bax. On
23 page 2 the projections of full-tree chipping increasing
24 to as high to 60 or 70 per cent, is that by 1996 or --
25 yes, 1996 as shown on pages 5 and 6?

1 MR. BAX: The '96 projections are just
2 illustrated graphically. This was, I think, derived
3 from the minutes of the discussion at the meeting from
4 the participants of the member companies. So that 60
5 to 70 per cent came from the people there.

6 MADAM CHAIR: And how long into the
7 future, do you know? Is that --

8 MR. BAX: Well, yes, I think they
9 projected to 1996. Like, I'm aware of -- I think
10 there's three or four, for example, that I know of
11 right now in my area, Thunder Bay. It certainly is in
12 60 per cent, yeah.

13 MS. SEABORN: Madam Chair, I wanted to
14 move now to the second part of the first issue Mr.
15 Neary was going to address in his evidence, unless you
16 have any more questions at this time for Mr. Bax in
17 respect of the information we can provide to the Board
18 on full-tree chipping.

19 MADAM CHAIR: Mr. Neary, before -- are
20 you moving on now from--

21 MR. NEARY: Yes.

22 MADAM CHAIR: --from this recommendation.
23 Just one question. Have you looked at what these
24 restrictions will do with respect to the economics of
25 harvesting?

1 MR. NEARY: No, we have not. One of the
2 problems that we have had surrounding these terms and
3 conditions is determining the area of shallow and very
4 shallow sites.

5 We've asked through interrogatories and
6 cross-examination of Ministry of Natural Resources the
7 extent of the shallow and very shallow areas, and have
8 not been able to get a response. So basically we do
9 not know.

10 MADAM CHAIR: Thank you.

11 MR. MARTEL: MNR doesn't have it or won't
12 provide it?

13 MR. NEARY: I suspect they don't have it,
14 but perhaps Ministry of Natural Resources can answer
15 that better than I can.

16 We have tried to find out, is what it
17 boils down to.

18 Now, on overhead 8 we start with the
19 second part of our first issue, which relates to
20 acidification. Now, we dealt with it as part of the
21 first issue rather than a separate one because it is
22 highly related to nutrient depletion.

23 And what we want the Board to do with
24 this part of our evidence is consider it to be
25 additional rationale for adopting our term and

1 condition 21(c). We are also bravely going to try and
2 clear up some of the confusion surrounding the
3 acidification issue.

4 First of all I'll explain why MOE is
5 concerned about, why I'm concerned about acidification.
6 We were one of the first groups in North America to
7 raise concerns about the environmental significance of
8 acid deposition and acidification.

9 We have an active legislative program of
10 controlling the emission of acid gases from industries
11 and utilities, and MOE also participated in
12 negotiations which have led in part to the passage of
13 the Clean Air Act in the United States. Basically we
14 think we're winning the acidification issue.

15 Now, out of the several impacts that
16 logging has on the aquatic environment, acidification
17 is unique and it's unique for two reasons. Whereas
18 most of the aquatic effects of logging are mitigated by
19 the regrowth of the forest, according to our
20 understanding of the problem, acidification is not.

21 And the second reason is that we rely
22 heavily on the application of the guidelines, the
23 fisheries guidelines to mitigate other aquatic effects,
24 except in most cases applying those guidelines will
25 also not mitigate acidification. So since we are

1 placing heavy reliance on those guidelines, we're
2 concerned about areas where the guidelines are probably
3 not going to work.

4 Now, like nutrient depletion,
5 acidification has had evidence come down on both sides
6 of the issue. There's no consensus about the
7 significance or even occurrence of this effect. Now,
8 there have been some scientists that have argued that
9 logging can acidify by itself, can acidify lakes and
10 streams.

11 I'm not convinced that that is the case,
12 I'm not convinced that just logging can do it, but
13 logging is not the only acidifying effect on the
14 Ontario environment. My concern is that logging may
15 act in concert with other acidifying influences.

16 Now, in my earlier -- earlier in my
17 presentation I explained that intensive logging removes
18 much more of the nutrient reserves or capital of a site
19 than regular logging methods. Two of the three
20 nutrients that are crucial in the acidification problem
21 are calcium and magnesium. So when you're exporting
22 calcium and magnesium from a site you are exporting
23 part of the acid neutralizing capacity of a site.

24 So, first of all, you get calcium and
25 magnesium getting exported through harvest with much

1 - more of it being exported if you're using an intensive
2 logging method. Now, during tree growth - this is
3 supposed to be a root - during tree growth the trees
4 need more calcium and magnesium to grow, they're
5 essential for its growth.

6 Now, very simplistically you've got
7 calcium and magnesium either in soil solution or more
8 likely absorbed on the outside of clay particles, and
9 the tree wants to take these off so that it can grow.

10 Now, these are positively charged ions
11 and what the tree sort of buys them with have to be
12 other positively charged ions, otherwise you end up
13 with a charge imbalance - and our understanding of the
14 universe is that chemical reactions are electrically
15 neutral - and what it buys them with are hydrogen ions.
16 So basically it's booting out hydrogen ions, taking in
17 calcium and magnesium, and these hydrogen ions are
18 acids. As a matter of fact pH, which is one measure of
19 acidity, just measures the concentration of hydrogen
20 ions.

21 Now, if the hydrogen ions -- as far as
22 water acidification goes, if the hydrogen ions just sit
23 there they're never going to make it to the lake or to
24 the river, but there are some ways that these hydrogen
25 ions can get to the aquatic environment and what they

1 need is what's called a mobile anion.

2 Now, an anion is a negatively charged
3 chemical species. Some of the common ones are
4 bicarbonate, chloride isn't too common, nitrate,
5 sulphate, and very common in forest ecosystems are
6 something that is either called O minus or R minus.
7 Now, this is just a big family of organic anions and
8 they can be -- and they are typically not very mobile.

9 So in a lot of the area of the
10 undertaking where you don't have a lot of these mobile
11 anions, these hydrogen acid ions which are acids are
12 going to attach themselves to relatively immobile
13 anions, but if there's lots of sulphate anions around
14 -potentially that acidity can get into a lake or a
15 stream.

16 Now, in Ontario we've got lots of areas
17 with mobile anions. As a --

18 Q. Mr. Neary, just before you move to
19 your series of maps -- Madam Chair, perhaps we should,
20 for the record, have the flip chart drawing of Mr.
21 Neary's marked as an exhibit.

22 MR. NEARY: Does it really need to enter
23 posterity.

24 MS. SEABORN: What would you like to call
25 it, Mr. Neary?

1 MR. NEARY: A good question. Very simple
2 diagram of some ionic reactions in soil.

3 MADAM CHAIR: That will be Exhibit 2204.

4 ---EXHIBIT NO. 2204: Simple hand-drawn diagram of some
5 ionic reactions prepared by Mr.
6 Neary.

7 MR. NEARY: I want to stress, Madam
8 Chair, Mr. Martel, that these aren't the only
9 acidifying reactions going on in a forest ecosystem,
10 there are many other processes that are going on.
11 These are the ones that we feel are significant with
12 regard to the issue we're talking about.

13 I might also add that probably the most
14 mobile anion is nitrate but it is also the one that is
15 usually in shortest supply in forested ecosystems and
16 when we look at lake and river water chemistry we
17 rarely find nitrate there, presumably it's been
18 intercepted and taken up by vegetation. Sulphate, on
19 the other hand, is not in such short supply.

20 This is a map of sulfur deposition in
21 Ontario and you can see that there's a gradient across
22 the province going from the south which receives the
23 most acid deposition, to the northwest which receives
24 relatively little acid deposition. This pattern exists
25 because of patterns of air flow and proximity to acid
gas emitting centres.

1 You'll notice there is a big irregular
2 blob here called the Sudbury zone where the effects are
3 dominated by a single source or -- single source,
4 several smelters in the Sudbury/Copper Cliff area.

5 That acid deposition falls on a land mass
6 with varying capacity to neutralize it. This is a map
7 derived from work done by Daryl Cowell of Environment
8 Canada and it shows the combination of soil's and
9 bedrock's ability to neutralize acid deposition.

10 Now, the area in the green is
11 characterized by low ability to neutralize acid
12 deposition, with the yellow being medium, red being
13 high, and the brownish area is an organic area where
14 they were not able to assess its capacity for
15 neutralizing acid deposition.

16 So you have a gradient going from south
17 to north in terms of amount of acid -- sulfur
18 deposition, varying capacity to neutralize it.

19 Fortunately for southern Ontario, most of
20 southern Ontario is underlain by limestone, so even if
21 though it gets the most acid rain it doesn't have any
22 acid lakes.

23 Now, the result - and this map is
24 synthesized from about 6,000 lakes - is that there are
25 areas of the province where severe acidification has

1 occurred, and these are the areas where you have the
2 sensitive terrain and lots of acid deposition.

3 Now, -I'm concerned where there are mobile
4 anions in ready supply and in areas that are already
5 depleted of acid neutralizing capacity that intensive
6 logging practices will aggregate acidification. It
7 will do this by not only exporting more of the acid
8 neutralizing capital from the site, but it may also
9 extend the time that it will take for acidified areas
10 to recover from acidification.

11 MADAM CHAIR: Excuse me, Mr. Neary.

12 MR. NEARY: Yes.

13 MADAM CHAIR: Were you making the point
14 -in that last map that the brownish area is an area
15 you're not concerned about?

16 MR. NEARY: It is an area where most of
17 the lakes are neutral to circumneutral. Now, we do not
18 restrict our term and condition 21(c) to the areas in
19 the red and other areas, if that's what you're trying
20 to get at.

21 I'm just showing you that there are large
22 areas of Ontario where you've got mobile anions, you've
23 got other things acidifying things. It is the intent
24 of this discussion to provide just additional rationale
25 for the acceptance of 21(c) across the area of the

1 undertaking.

2 Nutrient depletion is a concern in other
3 areas, its effect on acidification is an additional
4 concern.

5 MADAM CHAIR: And by way of this map,
6 which areas are you showing by colour are of most
7 concern with respect to acidification?

8 MR. NEARY: Well, the most strongly
9 acidified area is in the -- this would be part of the
10 Great Lakes/St. Lawrence area, Muskoka, Haliburton,
11 Parry Sound.

12 MADAM CHAIR: By the green and yellow
13 legend?

14 MR. NEARY: And the green is the heaviest
15 acidified, and this is Sudbury.

16 MADAM CHAIR: But you're not saying in
17 that larger brown area there is no concern about --

18 MR. NEARY: No. We have -- this is based
19 on 6,000 lakes out of 250,000, Madam Chair, and it is
20 not purported to be a comprehensive evaluation of the
21 problem, it's the best we have got.

22 MR. MARTEL: If the pH is 7--

23 MR. NEARY: Yes.

24 MR. MARTEL: --are any of our -- where do
25 you start to saw off, Mr. Neary, it becomes a serious

1 concern as opposed to a concern.

2 Because if the pH, even down as low as 6
3 doesn't - and I'm just going by memory of long gone
4 days of other places - that doesn't seem to be a
5 significant problem if it's 6 the pH. And I'm just
6 going by memory now, it doesn't--

7 MR. NEARY: No, you're correct.

8 MR. MARTEL: --it doesn't seem to affect
9 aquatic life and it doesn't affect soil until it gets
10 to about what, where you can really see the effects -
11 and I'm not just talking about the Sudbury area - I'm
12 thinking east of Wawa and so on where you see the brown
13 patch.

14 I'm trying to find where you consider the
15 whole thing starts to be a very serious concern, as
16 opposed to --

17 MR. NEARY: From an aquatic standpoint,
18 biological damage usually starts at a pH of 6, you're
19 right, okay, so anything below pH of 6 are already in
20 the biotic damage area. Now, there are a lot of areas
21 though that are conveniently lumped into the 6.

22 MR. MARTEL: Can we just go a little bit
23 slower because I'm going to try and take this down.

24 MR. NEARY: Okay.

25 MR. MARTEL: pH of 6.

1 MR. NEARY: Below that is where you see
2 aquatic biological damage.

3 Now, the point is that if you have
4 incoming acid deposition and you have processes in the
5 watershed that are generating alkalinity, processes in
6 the lake generating alkalinity - and alkalinity
7 incidentally is sort of the opposite of acidity - then
8 it may be holding its own at pH 6.

9 What happens if then you come into a
10 watershed, remove a lot of the base neutralizing
11 capital in that watershed, produce another source of
12 acids which is the regrowing forest, we don't know at
13 all what that is going to do to the aquatic system.

14 Really the point we're making here is
15 that logging by itself probably won't acidify a lake,
16 but we've got other things in Ontario acidifying things
17 and we don't know how they act in combination.

18 I guess our understanding, my
19 understanding of the issue is that you should avoid
20 these -- in this case, base capital intensive logging
21 practices on sites that probably have limited supply
22 for this reason as well as nutrients, and that's what
23 the purpose of this is.

24 MADAM CHAIR: But the map in the brown
25 area which shows a pH of greater than 7 is not an

1 indication of that?

2 In other words, could you log in the
3 brown areas and not be concerned about--

4 MR. NEARY: We probably wouldn't be.

5 MADAM CHAIR: --about its additional
6 burden to acidification?

7 MR. NEARY: Not from acidification, it
8 may be of concern from a nutrient standpoint.

9 MS. SEABORN: Q. Mr. Neary, could you
10 move now to the second issue that you address in your
11 witness statement, and I understand we're at overhead
12 12 now.

13 MR. NEARY: A. Yes, overhead 12. The
14 second MOE issue relates to operations on fragile or
15 sensitive sites.

16 It is our position that there are
17 environmental impacts in normal operating areas. Now,
18 we do not advocate banning logging operations on sites
19 that could be termed fragile or sensitive, what we are
20 asking the Board to do is to approve the use of an
21 existing process, the area of concern planning process,
22 on logging certain sites.

23 This is a Ministry of the Environment
24 issue because logging on fragile sites can extend the
25 recovery of the site and it can extend the duration of

1 negative effects. And, again, I remind the Board that
2 MNR is placing heavy reliance on regeneration to
3 mitigate a number of negative effects associated with
4 logging.

5 The MOE is concerned because there has
6 been evidence that operations on certain site types are
7 unlikely to be satisfactory. According to MNR evidence
8 these site types can be predictable in advance of
9 operations.

10 Now, the exact characteristics of fragile
11 or sensitive site types has been the subject of some
12 debate, I think it's fair to say. And in my written
13 evidence on pages 15 and 16 -- and, again, I've alluded
14 to some of the different definitions of sites that
15 could be considered fragile or sensitive.

16 Now, the non-satisfactory regeneration of
17 sites after logging activities is a departure from the
18 general tone of the EA document which describes a
19 process of access, harvest, renewal and maintenance.
20 It can also be argued that non-satisfactory
21 regeneration constitutes a degradation of the land base
22 in an economic and social sense.

23 On overhead 13 --

24 Q. Mr. Neary, just before you go ahead--

25 A. Yes.

1 Q. --you said that the MNR places
2 reliance on site regeneration for mitigation of
3 negative effects and that is summarized in your witness
4 statement; is that correct?

5 A. Yes, pages 10 and 11 I believe.

6 Q. And would the Board find those
7 references if they reviewed the footnotes to your
8 evidence in that area?

9 A. Yes.

10 Q. This is overhead 13?

11 A. Yes. On overhead 13 I've outlined
12 the first elements of the MOE position and, that is, to
13 support the development of what Ministry of Natural
14 Resources is calling the Environmental Guidelines for
15 Timber Management Activities.

16 And this appears as MNR term and
17 condition 78(b) and it calls for MNR to produce a new
18 implementation manual to address the operational
19 considerations for the activity of harvest, renewal and
20 maintenance with the specific purpose of addressing
21 protection of the physical environment. And they've
22 adopted this environmental guidelines as sort of a
23 working title.

24 Now, the trouble with this term and
25 condition is that no one knows what the contents of

1 these guidelines is going to be and no one has been
2 able to advise us of the timetable for implementation.
3 I like the idea of these guidelines because it can
4 identify protection of the physical environment as an
5 important value and then provide a framework within
6 which professional foresters can exercise judgment.

7 But, as with the previous issue, I don't
8 think that with an indefinite time frame we can just
9 afford to let things go on as they stand now.

10 We are, therefore, recommending that the
11 Board adopt term and condition 32(b). I put this MOE
12 term and condition on overhead 14 and it reads:

13 "In the event that activities are
14 scheduled in areas defined as sensitive,
15 (PF, PFR) untreatable based on
16 topography, portions of site class
17 3, shallow soils, the approach and
18 planning requirements for the development
19 of area of concern prescriptions as
20 prescribed in MNR conditions 33 to 36
21 will apply. These same planning
22 requirements shall apply to areas
23 untreatable based on residuals."

24 Q. Mr. Neary, can you describe how MOE
25 arrived at the definition for sensitive areas found in

1 this term and condition?

2 A. Yes. I've elaborated on them a
3 little bit on overhead 15. PF and PFR, protection
4 forest and production forest reserve, are by their very
5 definition sites where either growth limitations may
6 occur, in the case of protection forest, or where
7 operability is questionable in the case of production
8 forest reserve.

9 Now, we don't dispute that due to errors
10 in photointerpretation during preparing the FRI that
11 these may have been classifications that were assigned
12 in error. We also have no argument with the situation
13 where a tree species is growing poorly because it is
14 not the best species suited for that site. That isn't
15 what we're talking about, we're talking about areas
16 where these are accurate classifications.

17 And we believe that when MNR goes in and
18 operates these sites that the rationale for doing it
19 and the predicted result of those operations should be
20 explained in a publicly accessible manner which is
21 called for in the area of concern planning process.

22 Now, untreatable sites are broken into
23 two categories. The first are sites that are
24 untreatable due to certain site characteristics. In
25 MNR testimony these site characteristics were defined

1 as having topographic extremes, shallow soils,
2 excessive rock or stoniness, poor drainage or
3 inaccessibility.

4 MNR also agreed that these sites could be
5 predicted with reasonable confidence in advance to end
6 up as NSR categories 4 and 5 which, according to FMA
7 terminology, are sites that cannot be regenerated
8 economically.

9 MNR did qualify that by saying that
10 improvements in technology mean that you can treat some
11 sites that were previously considered to be
12 untreatable.

13 Now, the second type of untreatable site
14 is a site that is untreatable due to high tree
15 residuals. Now, this is a different type of situation
16 because the untreatable nature of the site arises by
17 design. Somebody has made a decision somewhere to go
18 in and take out only part of a stand, they partially
19 logged a stand and left too many trees standing to
20 permit proper regeneration. We believe that the
21 rationale for this type of logging should also be
22 publicly accessible.

23 Now, the third site descriptor, portions
24 of site class 3, we derive from a report produced by
25 Mr. Armson in 1976. In that report there is a

1 reference to the portion of site class 3 considered too
2 poor for timber production.

3 Now, I assume that these would be sites
4 in the lower range of site class 3 and that the
5 restrictions to growth on these sites would be much the
6 same as would lead a site to be classified as site 4
7 or protection forest.

8 During cross-examination MNR was not able
9 to clarify what was meant by this portion of site class
10 3, but given our concerns about nutrient depletion
11 outlined in our first issue, MOE has concerns about
12 logging these sites as well.

13 And the final descriptor, shallow soils,
14 was also outlined in our discussion of the first issue.
15 We consider shallow soil sites to have a potential for
16 nutrient depletion if logged with certain methods.

17 The MOE believes that the adoption of the
18 area of concern planning process for operations on all
19 of these sites will provide the public with rationale
20 for why we're going in there and explicit options for
21 mitigating the negative effects associated with
22 operating on these sites.

23 And an example would be the consideration
24 for logging some of these sites may lead the forester
25 to conclude that full-tree harvesting or full-tree

1 chipping is inadequate even though it doesn't fit our
2 definition set out in 21(c). If there's a nutrient
3 limitation, it's showing up in the lower end of site
4 class 3, then perhaps the logger will say: Well, I
5 suspect nutrient limitation here, therefore, I will not
6 full-tree log.

7 Q. Mr. Bax, do you agree with the
8 definition of sensitive as used by MOE in term and
9 condition 32(b)?

10 MR. BAX: A. Yes, I do, Ms. Seaborn. I
11 can tell you that in the renewal operations which we
12 carry out with KBM those sites are treated differently
13 by ourselves and our clients in terms of what we can do
14 on them and what we have to use on them.

15 Q. And, Mr. Neary, why do you believe
16 the area of concern planning approach is a practical
17 way to proceed with respect to these sites?

18 MR. NEARY: A. Well, we have seen it,
19 I've seen it done, and I would like to show the Board
20 an excerpt from the Magpie Forest timber management
21 plan.

22 MS. SEABORN: Madam Chair, if this
23 document could be marked as the next exhibit, it's four
24 pages and it's an excerpt from the Magpie Forest timber
25 management plan FMA 1989-2009, and this excerpt was

1 previously filed as part of Exhibit 911. 911 is quite
2 long, so I thought it would be easier just to pull the
3 excerpt out of Exhibit 911.

4 MADAM CHAIR: Thank you. This will
5 become Exhibit 2005.

6 ---EXHIBIT NO. 2205: Four-page excerpt from Magpie
7 Forest FMA 1989-2009.

8 MR. NEARY: I was about to lead you
9 through it but I don't have a copy.

10 MS. SEABORN: Q. Now, Mr. Neary, this
11 excerpt, what section of the plan is this taken from
12 from the Magpie Forest timber management plan?

13 MR. NEARY: A. This is from the listing
14 of areas of concern. And the second type of area of
15 concern, as you can see -- well, there's two different
16 page numbers, at the bottom it's referred to as page 5.

17 Q. I believe the page 179 is the page it
18 was in Exhibit 911.

19 A. Yes. I'll go for the shorter page.
20 You can see that a value has been identified, the value
21 is fragile sites. The forester here has looked at
22 alternatives of harvesting the site, including
23 considering not harvesting at all. He has looked at
24 the implications of these different harvesting options
25 and has selected an option which called for winter

1 operations only on stands with greater than 60 per cent
2 stocking.

3 The road building under the access
4 alternatives was modified to minimize damage and
5 harvest was restricted to only 30 per cent of the
6 conifer content to ensure that the remaining cover
7 would protect the site.

8 And the strategy he selected also called
9 for the individual assessment of each site so that you
10 could minimize impacts on a site to site basis.

11 And, similarly - I don't think it's
12 necessary to go through the details - but he looked at
13 alternatives on renewal and maintenance, again, with
14 the value of protecting this fragile site in mind. And
15 it's the intent of our term and condition 32(b) that
16 this approach be adopted for the area of the
17 undertaking. And we feel -- I feel that the Magpie
18 Forest example shows that this is a practical approach.

19 Q. And, Mr. Neary, is there anything
20 else that you rely upon to come to your conclusion that
21 fragile sites could be identified as special values?

22 A. Yes, and I'd like to hand out an
23 excerpt from the 1985 Draft Environmental Assessment.

24 MS. SEABORN: This, Madam Chair, is a
25 three-page document (handed).

1 MADAM CHAIR: Thank you. Do you want an
2 exhibit number for this, Ms. Seaborn?

3 MS. SEABORN: Yes, please, Madam Chair.
4 Thank you.

5 MADAM CHAIR: This will become Exhibit
6 2206.

7 MS. SEABORN: Thank you.

8 ---EXHIBIT NO. 2206: Three-page excerpt from 1985
9 Draft Environmental Assessment.

10 MR. NEARY: And I would like to direct
11 you to page 33 and the last sentence of the first
12 paragraph. It reads:

13 "This means that parts of stands will not
14 be cut or will be cut in a modified
15 manner in order to protect certain
16 identified values such as wildlife cover,
17 fisheries, water quality, bird nesting
18 areas, fragile sites, tourism values and
19 cultural features."

20 Clearly at this stage fragile sites were
21 considered to be identifiable values within the
22 Ministry of Natural Resources.

23 I would also like to point out that this
24 section of the Draft Environmental Assessment is
25 dealing with clearcuts. And further up in the

1 paragraph in brackets it indicates that clearcutting
2 should not, in general, be undertaken on sites unless
3 the soil is more than 30 centimetres deep.

4 Now, our earlier term and condition,
5 Madam Chair, Mr. Martel, is calling for the restriction
6 of one type of logging method on these shallow sites.
7 Clearly at one point in time it was the opinion of
8 Ministry of Natural Resources that clearcutting
9 shouldn't even occur on these sites. So we don't think
10 that our earlier term and condition is particularly
11 onerous.

12 MS. SEABORN: Q. And, Mr. Neary,
13 clearcutting in this context refers to open clearcuts?

14 MR. NEARY: A. Yes. It's open clearcuts
15 but these are defined at the bottom of page 32 as
16 having -- they're irregular in shape and they're broken
17 by topography and non-commercial or immature stands.
18 My understanding is it's clearcutting pretty much as it
19 occurs today.

20 Q. Thank you. Mr. Neary, the third
21 issue you indicated at the outset of your presentation
22 that you wish to address the Board on was the issue of
23 sediment deposition as a result of road abandonment.

24 A. Yes.

25 MS. SEABORN: And that issue, Madam

1 Chair, begins on overhead 16.

2 MR. NEARY: Now, as opposed to the first
3 two issues which I've talked about, this is one of a
4 different nature. I don't think there's all that much
5 controversy about the detrimental effect of putting
6 sediment into a river.

7 I'm not aware of any witness at this
8 hearing that has argued that it's a good idea to put
9 sediments into a water course. The issue is really how
10 to operationally handle the problem of abandoned water
11 crossings.

12 Now, its connection with the MOE mandate
13 is obvious, we have a mandate to protect water quality,
14 we're under clear policy direction to minimize the
15 introduction of sediment during activities, whether
16 it's road construction or road building around water
17 courses.

18 And the MOE is quite satisfied that the
19 application of the Guidelines for the Construction of
20 Access Roads and Water Crossings will minimize and
21 mitigate most adverse environmental impacts associated
22 with introducing sediment to water courses during the
23 construction phase. This is not the case for road
24 abandonment.

25 Now, in the Guidelines for Access Roads

1 and Water Crossings - and there's no need to turn to
2 them - there are two types of road abandonment
3 identified. The first is physical abandonment, when
4 there is a deliberate physical act to prevent the
5 access of vehicles to the road. This may involve
6 putting up a gate, it may involve digging a ditch, it
7 may involve taking out the first bridge or making a
8 berm, somehow you are blocking that road to access.

9 Now, it further states that this could
10 involve steps which will minimize the environmental
11 effects of non-maintenance.

12 Naturally abandoned roads do have a
13 monitoring requirement. In the guidelines it calls for
14 them to be monitored once every three years, but they
15 are not maintained. So they may -- and, again, we're
16 sticking to the definition of an abandoned road as one
17 where no maintenance is occurring. If there is
18 maintenance or a commitment for maintenance, then we do
19 not consider it to be abandoned.

20 Q. Mr. Neary, if a road is naturally
21 abandoned, would there be a gate at the front of that
22 road?

23 A. No, there would not.

24 Q. Then how would the abandonment
25 actually take place?

1 A. You basically just let it go.

2 Q. Thank you.

3 A. I would also like the Board to note
4 that many of the culverts used for these water
5 crossings have limited design lifetimes. According to
6 Mr. Adamson's evidence in MNR Panel 14, culverts up to
7 six metres span were designed for a 10-year return flow
8 flood, so that meant if normal rainfall was occurring
9 the flood going through that culvert would be at the
10 top of the culvert once in 10 years. Once in 15 or 20
11 years, it would be hydraulically overloaded.

12 Over six metres in span are designed for
13 a longer period and they are expected to pass the
14 -25-year return flow.

15 But culverts may wash out for reasons
16 other than hydraulic overloading. You can get debris
17 building up in it, you can get beaver activity, you can
18 get accumulation of rocks or other types of debris in
19 these, and that can significantly reduce the hydraulic
20 capacity of the culvert.

21 Now, overhead 17 gives you the elements
22 of the MOE position on this matter. The first one is
23 quite simple, if you don't maintain a water crossing
24 eventually it's going to wash out. We consider that
25 unmonitored abandoned water crossings are unacceptable

1 if detrimental effects are likely to result from a
2 washout.

3 Now, this is another area where we have
4 very little information as to the scope and nature of
5 the problem. No one, to my knowledge, has counted the
6 number of streams in Ontario. It was a massive
7 undertaking by Ministry of Natural Resources to count
8 the lakes, no one has done it with the streams. We
9 have not been able to get any information on the number
10 of abandoned roads or the number of water crossings on
11 those roads.

12 Now, MOE, as shown on overhead 18,
13 endorses MNR term and condition 43(c) with a
14 modification. Their term and condition says that:

15 "Where it has been determined that the
16 primary, secondary or tertiary road which
17 traverses...", I'm sorry, 'or tertiary'
18 is our modification underlined in bold.

19 "...which traverses the area of the
20 concern is likely to be abandoned, if
21 there is a water crossing in the area
22 of concern there shall be a determination
23 as to whether the water crossing is
24 likely to require removal. That
25 determination shall be based on factors

1 such as biological engineering, water
2 quality and safety concerns. Relevant
3 information to be considered at the time
4 of issuance of construction approvals,
5 work permits, shall be provided in the
6 timber management plan."

7 Now, the reason that we have added that
8 modification 'or tertiary road' is it's our opinion
9 that the significance of a washout has nothing to do
10 with the standard of the road, it has everything to do
11 with the nature of the water body that the washout is
12 occurring in. You know, a brook trout doesn't care
13 whether the gravel that clogs up its spawning area is a
14 washout from a culvert on a primary road or a tertiary
15 road.

16 It's also our understanding that most
17 tertiary roads are not built with many culverts, so we
18 do not think that it's all that big a deal.

19 Q. Now, Mr. Neary, at the outset of our
20 evidence this morning I advised the Board that the
21 abandonment of -- the removal of water crossings on
22 abandoned roads was one matter that was ongoing -- with
23 which there have been ongoing discussions with MNR and
24 with the Industry, and perhaps you could address that
25 issue now.

1 A. Well, during the negotiation process
2 it was agreed by all parties that the Ministry of the
3 Environment, Ministry of Natural Resources and the
4 Industry, OFIA, would meet together and try to develop
5 a proposal and bring that proposal back for review to
6 the other parties.

7 I'm aware that the discussions are active
8 and are ongoing, but my understanding is that there is
9 not yet a proposal ready to bring back for the review
10 of the other parties.

11 The discussions are revolving basically
12 around the process for identifying water crossings that
13 should be removed and the criteria which designate a
14 water crossing for removal, but it is my understanding
15 that where they stand right now, they aren't ready
16 to -- they haven't reached agreement, is what it boils
17 down to.

18 Q. And, Mr. Neary, what will be the
19 impact on MOE's term and condition 43(e) assuming
20 agreement is reached on the process and criteria for
21 removing these water crossings?

22 A. Well, on overhead 19 I've put MOE
23 term and condition 43(e). Now, basically what it says,
24 until the criteria for removing culverts is identified
25 and implemented we would like to see the mandatory

1 removal in an environmentally sound manner of all water
2 crossings on physically and naturally abandoned roads
3 prior to washout.

4 Now, prior to washout means that we are
5 putting in a provision where if you're keeping an eye
6 on them, if there's periodic monitoring on them, then
7 that is acceptable as long as there is a commitment to
8 remove the culvert in an environmentally sound manner
9 if it looks like it is going to wash out.

10 But we are assuming that there will be a
11 successful conclusion to these discussions and, if that
12 is the case, we will advise the Board of that agreement
13 and at that point we will recommend that our term and
14 condition 43(e) be physically abandoned.

15 Q. And, Mr. Neary, is it your
16 expectation that this matter should be capable of
17 resolution in advance of final arguments so that we
18 would not need to return to the Board with 43(e) at the
19 end of hearing all the evidence?

20 A. We have our most skilled negotiator,
21 Mr. Sutterfield, working on this actively and I would
22 expect that a satisfactory solution can be arrived at.

23 MADAM CHAIR: Mr. Neary, before you--

24 MR. NEARY: Yes.

25 MADAM CHAIR: --before you leave the

1 point of roads, is MOE going to take a position on
2 public access to roads with respect -- timber roads,
3 and I only raise that because I suppose the Ministry of
4 the Environment is setting itself up as another target
5 for the public opposition to being denied access, that
6 from the evidence we've heard from the Industry and the
7 Ministry of Natural Resources it's a pretty unpopular
8 thing to do to close a road that's been open for
9 reasons of timber management.

10 And you're really saying by condition
11 43(e) that in spite of any public input or desire to
12 keep a road open, you would require those to be closed.

13 MR. NEARY: No. What we're saying is
14 that it is unacceptable to us to leave a road in an
15 unmonitored and unmaintained condition, particularly
16 since the environmental guidelines for water crossings
17 have come in there has been a lot of time and thought
18 put into minimizing damage associated with making these
19 water crossings.

20 We cannot see the environmental benefit
21 of then just walking away with no commitment to keeping
22 them up or stabilizing them or even having a look at
23 them.

24 MADAM CHAIR: That commitment could only
25 come from the Industry or the Ministry of Natural

1 Resources.

2 MR. NEARY: That I can't answer, I really
3 don't know the answer to that. It is my understanding
4 that there have been satisfactory arrangements with
5 local groups for maintenance, Angler & Hunter groups,
6 for instance.

7 What we find unacceptable is just no
8 commitment to maintain these crossings that were put in
9 with environmental protection guidelines in mind, we
10 don't see the point of then just letting them wash out.

11 MADAM CHAIR: Thank you.

12 MS. SEABORN: Madam Chair, another matter
13 that or one other term and condition that may touch
14 upon that issue is MOE term and condition 40(b) at page
15 5 of our terms and conditions in terms of roads and
16 this is a matter that Ms. Dahl could address as part of
17 her oral presentation.

18 MADAM CHAIR: Okay. Thank you. Shall we
19 have our break now, Ms. Seaborn?

20 MS. SEABORN: Yes, thank you, Madam.

21 ---Recess taken at 2:50 p.m.

22 ---On resuming at 3:10 a.m.

23 MADAM CHAIR: Please be seated. Ms.
24 Seaborn.

25 MS. SEABORN: Thank you, Madam Chair, Mr.

1 Martel... I would like to turn now to the evidence of
2 Mr. Bax.

3 Q. Mr. Bax, what are the two main issues
4 that you address in your written evidence and that you
5 will be elaborating upon in your oral testimony?

6 MR. BAX: A. Madam Chair, Mr. Martel,
7 the first issue deals with whether current data
8 collection practices and information in the timber
9 management plan permit meaningful assessment of
10 silvicultural effectiveness.

11 And the second issue will deal with
12 whether it is possible in the preparation of the timber
13 management plan to give an indication of the expected
14 activities to be carried out on areas selected for
15 operations for the five-year planning horizon.

16 Q. And you have as well prepared a
17 series of overheads with respect to your evidence?

18 A. Yes, I have.

19 MS. SEABORN: Madam Chair, I would ask
20 that this document be marked as the next exhibit. It's
21 overheads of Herb Bax and it's 16 pages. (handed)

22 MADAM CHAIR: Thank you. This material
23 will become Exhibit 2207.

24 ---EXHIBIT NO. 2207: 16-page document entitled:
25 Overheads Herb Bax.

1 MS. SEABORN: Q. Mr. Bax, if there's a
2 single message you wanted to leave with the Board, how
3 would you characterize that message?

4 MR. BAX: A. The heart of my evidence is
5 simply that it is necessary and essential to have a
6 straightforward way to trace in a timber management
7 plan from what is proposed to what has actually
8 occurred, to what has happened in other words, and to
9 whether what was done, then, if it was done in an
10 effective manner achieving your objectives in a sound
11 environmental manner.

12 I would contend also that if you cannot
13 do that it would not be possible to do good timber
14 management or good timber management planning.

15 Q. And, Mr. Bax, is the information
16 required to trace silvicultural effectiveness provided
17 in existing timber management plans, in your opinion?

18 A. From my review of the plans that I
19 have gone through it is not possible to determine
20 silvicultural effectiveness at the operational level
21 from the information given in the timber management
22 plan and relate that to the planning and reporting done
23 at the forest level.

24 Q. Mr. Bax, could you turn to page 4 of
25 your evidence which is behind Tab 2 of Exhibit 2200A.

1 Now, at the top of page 4 you provide a quote from the
2 Class EA which states that:

3 "As part of MNR's effectiveness
4 monitoring program a comprehensive system
5 for recording survey results at the local
6 level is being developed. Aggregation of
7 these results will provide regional and
8 provincial summaries."

9 Now, what is the significance of that
10 statement, in your opinion?

11 A. My opinion, the Class EA Document
12 simply acknowledges here that to determine
13 effectiveness you have to first collect data from the
14 -local or the operational level.

15 Q. Now, against that background can you
16 provide the Board with a definition of silvicultural
17 effectiveness?

18 A. I prepared an overhead, this is my
19 first overhead, overhead No. 1, and it's a simple
20 definition of silvicultural effectiveness and it can be
21 defined as:

22 "Achieving the desired management
23 objectives at the lowest possible cost
24 and that it be consistent with sound
25 environmental practices."

1 I would like to give you an example.

2 Suppose, for example, a black spruce stand was to be
3 harvested by clearcutting in blocks and if a portion of
4 those blocks were renewed with planting and a portion
5 of the blocks was renewed with seeding, then under my
6 definition - and then if we go to measure the results
7 of that renewal activity, and if stocking is the
8 measure of effectiveness that we're using and the level
9 of stocking was found to be the same, then the block
10 that was renewed with the seeding method, which is the
11 more efficient or the more cost-efficient method, would
12 be the one in that case that renewed the site most
13 effectively.

14 Another point I wish to make, and this
15 would be my second overhead, I think it's important -
16 and this is taken from the Silvicultural Guide for the
17 Spruce Working Group for the province - and it simply
18 makes the point that timber management cannot be
19 considered to be a series of discrete and unrelated
20 treatments. The management of a stand is an integrated
21 and interdependent series of treatments including
22 harvesting, renewal and maintenance operations.

23 I guess it's important when we speak of
24 silvicultural effectiveness to recognize that harvest
25 will affect renewal and that renewal affects tending or

1 maintenance operations and that when we look at
2 effectiveness it's the three harvest, renewal and
3 maintenance that has to be considered.

4 Silvicultural activities are first
5 carried out at the ground or operational level and
6 silvicultural effectiveness and environmental
7 monitoring, therefore, should be first measured at that
8 level. And we can measure it by general standard site
9 types, we can measure -- track it through silvicultural
10 packages, we can track it through, as we do now mostly,
11 through forest resource inventory stand typing and
12 standard stocking is a measure, or whatever unit of
13 measure is appropriate or that we feel is appropriate.

14 The point is that the harvest, renewal
15 and maintenance activities are not reported in the
16 timber management plan consistently by silvicultural
17 package or site type, and so it is not possible to link
18 the activities to that ground or operational level from
19 the information given in the timber management plan.

20 Q. Now, Mr. Bax, what is your
21 understanding of the current requirements in a timber
22 management plan with respect to forecasting and
23 reporting performance?

24 A. As I've indicated in my evidence, the
25 timber plan management planning manual requires the

1 forester to make certain forecasts for the five-year
2 term of the plan as well as report on performance in
3 the plan as well.

4 I've prepared my overhead No. 3, starting
5 with the top here. Harvest activities, the first line
6 there, for example, are forecast in Table 4.15 and
7 reported in Table 4.4 and they're usually reported in
8 hectares by working group and sometimes by age-class.

9 The second line then renewal and
10 maintenance operations again are forecast in Table 4.19
11 and are reported on in Table 4.4 and again in hectares
12 by working group and by treatment methods in this case.

13
14 Q. Mr. Bax, what do you mean when you
15 say that the report is by working group or forest unit?

16 A. Working group is defined as simply an
17 aggregation of stands that have the same predominant
18 tree species and are treated in a similar manner, and
19 forest unit is simply a subdivision or a finer division
20 of the working group classification and it's usually
21 based on other characteristics such as site or
22 vegetation, but it's not standardized at all.

23 Each unit or unit forester can define a
24 forest unit as he or she feels. An example would be a
25 black spruce working group, you might classify it as

1 black spruce 1 and black spruce 2. Black spruce 1
2 would be simply that portion of the working group that
3 exists on upland sites, for example, and black spruce 2
4 would be that portion of the working group which exists
5 on lowland sites.

6 Q. Now, in the context of determining
7 silvicultural effectiveness, are these forecast and
8 performance tables useful?

9 A. Yes, they're helpful but they do not
10 give me everything I need to know in determining
11 effectiveness. Harvest, renewal and maintenance, as
12 I've indicated earlier, are ground level or stand level
13 activities, and when these activities are reported at
14 the working group level I cannot determine where these
15 activities took place on the ground.

16 Working group is a forest level activity
17 and is too broad a category to determine effectiveness
18 relative to the physical environment or the
19 silvicultural packages that have been carried out in
20 the timber management area.

21 And, for example again, a working group
22 or forest unit can contain some sites which would have
23 any number of silvicultural packages to renew them but
24 that isn't given in the working group so I can't tell
25 which of the sites under the working group achieved

1 minimum stocking or not, it isn't tracked by that
2 particular site, it's only tracked by the working
3 group.

4 And then I would submit further that, you
5 know, that's what the forester has to know, he has to
6 know which particular sites within the working group
7 provide him satisfactory renewal and which ones don't.

8 Q. And, Mr. Bax, are free to grow
9 assessments of assistance in determining silvicultural
10 effectiveness?

11 A. My third column there then, as you
12 can see from the overhead, free to grow, is forecast in
13 Table 4.22 and it's reported on in Table 4.7 in
14 hectares again by working group, whether it's treated
15 or untreated, just very broad categories. Sometimes
16 they provide age-class classifications as well.

17 Free to grow is the main measure of
18 effectiveness reporting in the timber management plan
19 and it's useful but it's of limited value because,
20 again, the individual activities of harvest, renewal
21 and maintenance are linked together in the
22 silvicultural groundrules and they're linked together
23 there through the silvicultural treatments or packages
24 that they specify in the groundrules.

25 It is not possible right now to determine

1 from free to grow reporting which silvicultural
2 package, again, or on which particular site led to the
3 level of effectiveness that was given for that
4 particular site, and you cannot also determine where it
5 happened on the ground as well from the reports given
6 in the TMP.

7 Q. Could you turn to page 5 of your
8 witness statement. On the first full paragraph on page
9 5, at the end of that paragraph there's a sentence that
10 begins with the words 'While', and your evidence states
11 that:

12 "While the activities take place in the
13 areas allocated for harvest, there is
14 little, if any, integration in the
15 forecast and performance tables with
16 silvicultural groundrules. The forecast
17 and performance tables do not require the
18 same unit of measurement to be used as in
19 the silvicultural groundrules."

20 Now, could you elaborate upon that
21 statement for the Board?

22 A. Okay. Just, again, turning to my
23 overhead, the fourth one therein. The silvicultural
24 groundrules are reported in Table 4.11 in the TMP
25 manual and are reported, again, by working group, site

1 description and silvicultural treatments.

2 And the forecast and performance tables
3 that we reported on earlier report by working group or
4 treatment method or by working group and treated or
5 untreated classifications and are reported in by
6 hectares.

7 Working group is usually just a -- or,
8 pardon me, the silvicultural groundrules are just
9 written as a description with the particular treatments
10 attached to the working group.

11 So there's no uniform or systemic
12 classification system dealing with treatments or sites,
13 they do deal uniformly with the working group but not
14 at the site or ground level by the treatments or the
15 site descriptions. So the only common thread in the
16 current reporting in the timber management plan is by
17 the working group or forest unit.

18 If I can give an example, because this is
19 really a key point why I feel the manual falls short.
20 If we take the silvicultural groundrules which are
21 reported on in Table 4.11 and, again, if we use a
22 working group classification, in this case jack pine,
23 we have the treatments listed for the renewal of that
24 working group.

25 Then if we go to the free to grow tables

1 4.11, 4.22 and 4.7, again, the jack pine will be
2 reported this time in hectares and they break them down
3 sometimes by -- well, they do them most of the time by
4 treated and untreated classifications, but the
5 difficulty, again, the only real descriptor that's
6 common to the two tables is the jack pine working group
7 and that's too broad a classification for me to track
8 through and see why we have the free to grow in these
9 tables and on what particular site, for example,
10 they're renewing adequately or inadequately.

11 And they can break then down sometimes
12 further by a forest unit, like, jack pine 1, jack pine
13 2, in some cases. They'll follow it through in 4.7, I
14 haven't found any 4.22s that are reported by forest
15 unit but, again, it's too broad a classification - and
16 that's my main point - in the TMP reporting.

17 I cannot determine, just to re-emphasize,
18 which particular treatment or package was effective in
19 renewing the working group from the data given in the
20 TMP, nor can I tell where they were effective in
21 relation to the ground.

22 The FRI maps, which is the final point on
23 this overhead, report by area, simply by area and the
24 site description sometimes, but I can't tell where,
25 which particular sites led to the level of

1 effectiveness located on the map which is simply
2 indicated, again, by the working group or a particular
3 stand description. There's just no tie-in also.

4 Q. Mr. Bax, do you consider free to grow
5 as a full measure of effectiveness?

6 A. No. I mean the final measure of
7 effectiveness is whether there's a stand there to
8 harvest when we go back at the predicted rotation age,
9 that's your real true measure of effectiveness, but
10 it's an indication, but it's also just a snapshot in
11 time, it's one point in the evolution of the stand.

12 And the free to grow does not tell me
13 whether the treated area is free to grow because of
14 what package of treatment, it may be there simply
15 because the area renewed naturally by itself. We may
16 have planted black spruce and the jack pine came up
17 through and it's certainly free to grow but I can't
18 tell that from the information given in the plan -- in
19 the timber management planning manual.

20 Q. And, Mr. Bax, are you familiar with
21 the reports associated with timber management that MNR
22 currently prepares or is proposing to prepare in the
23 future in its draft terms and conditions?

24 A. Yes, I am, counsel, and in my
25 evidence in particular I address the report of past

1 forest operations, the annual report for the forest
2 management unit, and the annual report for the province
3 as well as the state of the forest report which is the
4 five-year report.

5 Q. And could you briefly describe for
6 the Board your understanding of the contents of these
7 reports?

8 A. Quickly I go to my overhead 4, just
9 the four reports.

10 MR. MARTEL: Before you go on, could you
11 tell me how you would actually do what you're
12 suggesting is missing from MNR's package, how would you
13 report that?

14 Maybe you could give me some indication
15 how you would report what was necessary and how you
16 would tie it altogether to get the type of final
17 product you want.

18 MR. BAX: I've prepared a chart for that
19 later on in the evidence where I'll show how I would
20 track it through.

21 MR. MARTEL: Okay, fine.

22 MS. SEABORN: If that's acceptable to
23 you, Mr. Martel, we will be addressing that very
24 question.

25 MR. MARTEL: Well, I hadn't gone through

1 this material, so I just wanted to see how it's going
2 to be done or can be done.

3 MS. SEABORN: Well, Mr. Bax will
4 certainly set out his proposal on this matter for you
5 for your consideration.

6 MR. BAX: Okay. Just going to the four
7 reports that we talk about in my evidence is the report
8 of past forest operations, again, includes the forecast
9 and performance tables for the past five years and that
10 includes harvest, renewal and maintenance and free to
11 grow, which I just described actually through the
12 previous overhead.

13 The annual report for the forest
14 management unit, again, includes the harvest, renewal
15 and maintenance activities including the areas again
16 free to grow for just the one preceding year.

17 The annual report for timber management
18 and the five-year state of the forest report, again,
19 provide provincial summaries of the management
20 activities carried out on the FMU.

21 My professional opinion is that these
22 reports taken together only tell you whether you were
23 effective in regenerating a particular working group,
24 they do not link the areas harvested to the areas
25 renewed nor maintained, they don't link it to

1 silvicultural packages or treatments to the ground, I
2 can't see them on a map, and I guess I would submit
3 that the linkage should be by silvicultural package, by
4 standard site type and working group so that you can
5 determine from the information given in the manual or
6 the plan, pardon me, what and where you have been
7 successful.

8 Later on, again, I'll explain that in the
9 Ministry of Environment's proposal how we would add to
10 these reports to enable us to do that.

11 MS. SEABORN: Q. Now, Mr. Bax, in your
12 witness statement you briefly reviewed the positions
13 taken by other parties in respect of this issue; is
14 that correct?

15 A. Yes, I have.

16 Q. And since preparing your evidence,
17 have you reviewed portions of the revised terms and
18 conditions of Forests for Tomorrow and the OFIA that
19 were sent out in March, 1992?

20 A. Yes, I have.

21 Q. And from your review of those terms
22 and conditions, what's your understanding of the
23 Industry's position with respect to these reporting and
24 performance tables?

25 A. Their forecast and performance tables

1 are similar to that contained in the timber management
2 planning manual of the Ministry of Natural Resources.

3 The requirements and contents of the silvicultural
4 groundrules seem to be the same.

5 And Industry has also acknowledged that,
6 for example, FEC information shall be considered in the
7 development of the groundrules, the new groundrules.

8 And the report of past forest operations,
9 the annual report and the state of the forest report
10 would seem to be similar to that contained in the
11 Ministry of Natural Resources.

12 Q. And when you say they're the same as
13 MNR's proposals, I take it you mean from your review
14 the term and condition wording put forward by the
15 Industry is identical to that proposed by MNR in its
16 January 6th, 1992 terms and conditions--

17 A. Yes, that's correct.

18 Q. --in respect of those reports.

19 A. Yes.

20 Q. And what's your understanding of the
21 position taken by Forests for Tomorrow in respect of
22 this issue?

23 A. Forests for Tomorrow has proposed
24 silvicultural standards, or guidelines I believe they
25 call them, on the basis of working groups across the

1 entire area of the undertaking. They've set standards,
2 again, for example, black spruce and jack pine and the
3 various species and, in my opinion, these guidelines
4 cannot take into account all the site variations that
5 occur within even one particular forest management unit
6 let alone the entire area of the undertaking.

7 I think that's one concern I would have
8 with their guidelines. They advocate that the data
9 should be easily traceable and has recommended, again
10 similar to Ministry and Industry, the use of an
11 expanded uniform forest ecosystem classification to
12 develop appropriate site-specific silvicultural
13 treatments.

14 Forests for Tomorrow have also requested
15 that the activities in the reports for past forest
16 operations and the annual reports be tracked and
17 monitored by site type, silvicultural package to report
18 effectiveness and that's very close to what we are
19 recommending as well.

20 Q. And in respect of the position that
21 has been taken by the OFAH/NOTOA Coalition, could you
22 explain to the Board your understanding of that?

23 A. I believe they are seeking
24 regeneration stands that are species and site-specific,
25 again, utilizing a site classification system, and this

1 is close to what I've recommended, but I haven't
2 specified the regeneration standards that they should
3 be in the timber management plan documentation.

4 They also require specific detail and --
5 or specific cause and effect linkages to be specified
6 or detailed, and it is my understanding that the
7 current knowledge of the science does not allow us to
8 do that, we just don't have enough information yet.

9 This is why we believe it's important to
10 provide the data in a format that is easily traceable
11 so that we can track and learn. I believe that much of
12 the data is already available, but it needs to be
13 presented in a more systematic and simple, easily
14 traceable manner so that we can follow it through.

15 Q. And, Mr. Bax, you also in the written
16 evidence refer briefly to the OPFA, the Ontario
17 Professional Foresters, and your understanding of their
18 position. Could you just briefly summarize your
19 evidence in that regard?

20 A. OPFA has acknowledged that the
21 guidelines and prescriptions need to be improved to
22 receive feedback from monitoring, but I don't believe
23 they indicated or went to the detail to how to improve
24 that feedback process.

25 Q. And, Mr. Bax, your summary of other

1 party's positions is found at pages 6 through 8 of your
2 witness statement?

3 A. Yes, that's correct, Madam counsel.

4 Q. Now, could we turn then to page 9 of
5 your evidence. Now, the last line on page 9 you state
6 that:

7 "MOE sees the implementation of
8 standardized site descriptions as key to
9 future analysis of silvicultural
10 effectiveness."

11 Could you explain for the Board first
12 what you mean by standards site type and; second, why
13 it is your opinion they're key to future analysis of
14 silvicultural effectiveness?

15 A. First, a site type is an area
16 described by the soil, vegetation or climate or
17 topography on a site and a standard site type is one
18 that is common to the area of the undertaking, so that
19 it can be used across it.

20 Secondly, it is my opinion that general
21 standard site types can provide the linkage between
22 silvicultural guides and the silvicultural groundrules
23 which would enable us to determine effectiveness from
24 the timber management plan documents.

25 Q. And, Mr. Bax, have you prepared an

1 overhead that goes into further detail with respect to
2 MOE's proposals on general standard site types?

3 A. Yes, I have, and this is my overhead
4 No. 5. I've entitled it traceability.

5 Q. Mr. Bax, just before you get into
6 this, I believe Mr. Martel this chart and Mr. Bax's
7 explanation of this chart should hopefully be a start
8 to answering your question of a few moments ago.

9 So don't go too quickly, Mr. Bax, so that
10 we can all follow you.

11 A. Okay. I prepared this chart and
12 titled it Traceability and Decision-Making in
13 Silvicultural Planning. The purpose of this chart is
14 to demonstrate how general standard site types provide
15 traceability in decision-making in silvicultural
16 planning.

17 We support MNR's terms and conditions
18 78(a) and 20(c) which deals with the need to develop
19 the general standard site types. MNR recognizes a need
20 for the general standard sites types to link
21 silvicultural guides and the groundrules.

22 That's in here. The link between the
23 guides and the groundrules which I need to determine
24 effectiveness is the general standard site types that
25 provides that and they've taken it as far as joining

1 those two.

2 They don't carry through, however, to the
3 other areas addressed to report on operations or the
4 activities and they simply report on them under
5 separate or different classifications, so you don't
6 have that simple traceability that we're after.

7 They do indicate in term and condition 80
8 the development of new programs that they're going to
9 address and it's implicit in there. We understand they
10 are going to look at that, but it's not explicit and we
11 feel it's necessary for it to be explicitly addressed
12 so that anyone reading a timber management plan can
13 follow it through, and that becomes especially
14 important in open houses and public reviews.

15 Q. Now, can you provide the Board with
16 an example of what you mean?

17 A. Yes. The example I've got is an
18 example from the Claybelt under the black spruce
19 working group, and the documentation from there.

20 The foresters there have identified 14
21 operational groups or site types, if you will then,
22 unique to that black spruce working group in that area.

23 Six out of these 14 FEC operational
24 groups have been identified as containing black spruce
25 advanced growth stock stocking in excess 40 per cent.

1 So, in other words, if they can retain that advanced
2 black spruce growth that's there through their harvest
3 operations they will have met the minimum stocking
4 standard set for that particular area or site and have
5 achieved renewal, if you will.

6 Now, it would seem logical and necessary
7 for the forester or the silviculturist on the area to
8 prescribe a package that would then protect that
9 advanced growth that is already existing on these
10 sites, especially, for example, you would have to
11 consider what type of logging method you would use so
12 you wouldn't destroy the logging method (sic), and I
13 believe you have heard evidence on the CLAAG system,
14 the careful logging around advanced growth, which
15 originated I believe from that Claybelt area.

16 And I would submit that in the
17 groundrules for this area in Table 4.11, the forester
18 should separate those site types because he's going to
19 have particular harvesting methods and renewal methods
20 obviously associated with those six FEC groups that
21 have the advanced growth stocking there.

22 Now, what would be the advantage of
23 identifying these site types and associated
24 silvicultural packages? Well, by identifying the site
25 types you would be able to prescribe and monitor the

1 effects and the effectiveness of the activities.

2 If I can use the flip chart just to show
3 an example, following it through from this other one.

4 Again, if we start with the silvicultural
5 groundrules contained in Table 4.11 and the free to
6 grow in Tables 4.22 and 4.7.

7 Now, in most of the plans that we have
8 now, again, there would be a black spruce working group
9 with particular treatments or packages that they were
10 going to use, and in the forecast table - and I've used
11 an example - they would - let's call this forecast and
12 this performance - they would under the black spruce
13 working group, for example, forecast to renew under
14 that working group the black spruce working group a
15 thousand hectares.

16 Five years later when we come and do a
17 review the actual performance of that is that 600
18 hectares were renewed. The problem with that is we
19 don't know where the difference is, the 400 hectares,
20 first of all, is it in limbo or have they failed and;
21 secondly, what led to this level the year that those
22 600 hectares were renewed.

23 And I think what we are prescribing or
24 suggesting is that, take those operational groups, six,
25 and separate them in the groundrule and in the forecast

1 and performance tables. So that in this case if, for
2 example, the forester on this area used CLAAG or HARO,
3 whatever he's going to use, usually it's CLAAG but
4 that's material to this advanced growth that's there,
5 then again we would see in the reporting tables and the
6 forecast table classification for those particular
7 forest units, so we would have black spruce operation
8 groups listed one to six.

9 In this case if - I've used half - half
10 the area was forecast to be renewed and if the actual
11 performance we get 450 -- 450 hectares, so we have come
12 close to doing what we said we would do and we know
13 exactly where they are by these site types and why.

14 The remaining site groups - and I must
15 admit I've exaggerated a bit - but, again, it's the
16 remaining 500 hectares and we've only achieved 150 in
17 our performance and we know this is where the problem
18 lies, so we have a much better way of telling what
19 happened on what particular sites in that unit and why.

20 We know -- in this case I know, for
21 example, they were very effective in using that
22 advanced growth that was already existing on the site
23 but they've got to improve their ability to renew the
24 other type of operational groups where they didn't have
25 that advanced growth, and the only way they can do that

1 is by, for example, paying special attention to the
2 harvesting methods they use in this particular working
3 group because otherwise they could destroy it.

4 MADAM CHAIR: Excuse me, Mr. Bax. With
5 respect to finding the geographic location of those
6 stands, how would that be recorded in --

7 MR. BAX: On the map there. Well, what
8 we're suggesting is to use the particular site
9 description, the general standard site type. In this
10 case they would identify those sites with a particular
11 coding, 1 to 6, A to E, whatever you want.

12 MADAM CHAIR: So that site type would be
13 on a map and then you would have to look into a record
14 of stand maps to see the exact location?

15 MR. BAX: No, I could go right to the
16 map.

17 MADAM CHAIR: Or it would be coloured on
18 map to show --

19 MR. BAX: That's right, those particular
20 sites. And that's why we're asking to trace it by
21 general standard site types.

22 MADAM CHAIR: But you're making up this
23 site type as you --

24 MR. BAX: Yeah, yeah. It's, you know,
25 whatever they're going to call it or classify it as

1 that's fine, we're just saying provide that
2 traceability by site type. And I can see where it was
3 on the map, I can see how you prescribe to do it in the
4 groundrules, and I can see actually how you did.

5 And that's really the -- it's a systemic
6 simple way for anybody then, public, a visiting
7 forester or whoever to follow through in a timber
8 management plan that traceability and it's not possible
9 to do that when we use working groups.

10 MR. MARTEL: Well, if it's that simple
11 why is MNR -- obviously you haven't been able to
12 convince them or we wouldn't be here going through this
13 material. What is it that they say they can't do, or
14 won't do?

15 MR. BAX: Well, I guess you would have to
16 ask them that.

17 MR. MARTEL: Well, somebody from MOE must
18 have been at the negotiations, there must be some
19 reason -- I would just like to -- the way you defined
20 it it looks not that difficult, but I can't see if it's
21 that simple, I fail to understand why MNR wouldn't dig
22 in.

23 MR. BAX: You know, they have agreed and
24 I will go through that in my evidence later on, they
25 have agreed to use site types on the maps and those

1 site types will be in the groundrules as well, so we
2 have come I think about 70 per cent of the way.

3 MR. MARTEL: But you're still 30 per cent
4 short.

5 MR. BAX: Yes.

6 MR. MARTEL: And as I wrote this down, I
7 couldn't help and write down how it would be done and
8 why there would be any difference or outstanding
9 differences.

10 MR. BAX: Well, I can't answer for them.
11 The only thing I can suggest is, I mean, there's an
12 evolution taking place too, we're learning as we go
13 along as foresters and this type of information is
14 becoming, you know, the cause/effect, we're starting to
15 recognize that this is there, it's important and to
16 mark it, if you will, so we can track it.

17 And the first thing a forester is going
18 to do, I mean, if I'm given the responsibility to renew
19 these sites I'm going to capitalize on that 40 per cent
20 advanced growth that's there obviously, so he's going
21 to then implement that careful logging and track it
22 through.

23 MR. MARTEL: What does term and condition
24 84 not do that you want?

25 MR. BAX: I will get into that in a few

1 minutes. Term and condition term 84 deals with their
2 studies on growth and yield, we're just specifying they
3 should do it, again, by their general standard sites
4 types that they're going to develop. They just say by
5 site types.

6 The problem is through a lot of the FMA
7 documents and the plans that we reviewed everybody uses
8 there's no standard approach to site classification and
9 that's the way it's evolved, and now is the time and
10 we've reached a knowledge base I think where we can,
11 and the MNR has acknowledged that. I think it's a
12 matter of developing that general standard site type
13 for the province and then working it down to the forest
14 unit level.

15 MADAM CHAIR: So you're saying, Mr. Bax,
16 that any site type description or descriptor you could
17 come up with for black spruce that would involve the
18 CLAAG or HARO methods would be the same all over the
19 province?

20 If I were to look at a map and see that
21 kind of stand, whatever name is given to it, however
22 it's described, that kind of stand could be found
23 anywhere around the province?

24 MR. BAX: No. I think -- I would be --
25 you know, for example, those types of stands we

1 generally only find in the Claybelt. There's some
2 other areas in the province where we have black spruce
3 advanced both, but not to the extent. So I believe
4 those sites are unique to that particular area of the
5 province.

6 I mean, what I envision - and again MNR
7 is I'm sure going to detail that - I mean, it's going
8 to be a nested hierarchal classification system.

9 I mean, across the whole area of the
10 undertaking there may just be simply something called
11 black spruce, but once we come to an area it may be,
12 you know, then broken down so that for this particular
13 unit -- I mean, there are sites that are only present
14 in one particular area, and so it's important to be
15 able to identify those sites and track them, and that's
16 fine, as long as we can see that traceability.

17 MADAM CHAIR: So you would have to know
18 that though when you were looking at any particular
19 area.

20 Obviously the reason for this, and I
21 remember some of this evidence very early on from MNR
22 is that the demand has changed, the public wants to see
23 this in a way that they didn't--

24 MR. BAX: Absolutely.

25 MADAM CHAIR: --want to see it before, so

1 the information wasn't produced in this way before.

2 MR. BAX: No.

3 MADAM CHAIR: But are you still left with
4 the situation that someone would have to know a
5 particular forest because there would be different
6 descriptions and different site types; in other words,
7 I couldn't sit in Toronto and every -- I could have a
8 list of every site type in front of me and I could find
9 it on a map, I would have to know something about--

10 MR. BAX: It would be nested.

11 MADAM CHAIR: --the characteristics of a
12 particular forest?

13 MR. BAX: Yes. The best example,
14 Saturday morning when we had the public review for the
15 Hearst Forest one of the concerns from one of the
16 members was with trout streams.

17 This gentleman makes his living bringing
18 in fishermen from all over the world for speckled trout
19 up in that area. His concern was with the little cold
20 water springfed - I don't know what you call them -
21 rivulets or streams, you know, about this wide, and
22 he's knowledgeable of the area, he was losing fisheries
23 on this particular stretch of river where he was always
24 able to bring clients in and catch good fish.

25 He felt that because of the cutting the

1 warming up and siltation to even these little rivulets
2 where the little spawning -- the little fish would be
3 able to live, the temperature is too warm or the
4 silting.

5 We couldn't go to a stand map -- we went
6 to them, I said: Well, can you show us on the maps,
7 and they had the stand maps there, but not
8 prescription. I couldn't tell what either through the
9 groundrules or through the map what particular method
10 or package was going to be treated.

11 Now, if we had that traceability I could
12 say: Well, on this particular area you are going to
13 leave 40 per cent advanced growth, you know, you aren't
14 going to have a severe problem.

15 MADAM CHAIR: So the traceability you're
16 talking about is specific to the timber management
17 plan --

18 MR. BAX: Yes, and the documentation.

19 MADAM CHAIR: --and linking the
20 groundrules to on-the-ground activities, it's not
21 something that applies across the province?

22 MR. BAX: No.

23 MADAM CHAIR: Each timber management plan
24 forest will have different ways--

25 MR. BAX: Particular site types that are

1 unique to those areas, and it's nested together so they
2 can still do the effectiveness reporting at the
3 provincial level or, you know, broader area.

4 MADAM CHAIR: Yes, Mr. Martel and I have
5 heard many hours of evidence about FEC and the need to
6 do that forest ecosystem kind of classification, so we
7 get confused when we talk about standardized site
8 types, we start to think about things like FECs.

9 MR. BAX: Well, I view it more
10 operationally. It's got to be something that I can
11 understand and the public can, it's got to be
12 relatively simple, systemic and traceable.

13 I don't need 40 site types, I need five
14 or eight in a particular area and then I can show -- I
15 can tell whether they were effective or not.

16 MADAM CHAIR: You want to be able to make
17 a link between whatever is written in the timber
18 management plan with the operations on the ground?

19 MR. BAX: That's right.

20 MR. MARTEL: Can you show it though? I
21 mean, the thing that I can't -- my colleague is talking
22 about FECs and then you've got stand types, stand maps.
23 How does this all come together. Do you develop a new
24 series of maps, can you use the existing ones?

25 MR. BAX: Oh yeah.

1 MR. MARTEL: Well, how much can you break
2 it down?

3 MR. BAX: We have examples. We have
4 examples later on, again in my evidence, where we feel
5 the Ministry or foresters within the Ministry have come
6 up with perfectly acceptable simple traceable ways to
7 do exactly that. It's there in the timber management
8 plans.

9 MS. SEABORN: Again, Mr. Martel, we will
10 coming to some specific examples in the plans.

11 MR. MARTEL: Well, you see, again that's
12 what rankles me. I can't understand then if it's all
13 so simple why there is any objection to not moving
14 ahead with it.

15 There's got to be a reason somewhere why
16 there is some resistance. It just sounds so wonderful,
17 and yet we hear people saying: Well, only part of it
18 can be done.

19 Now, maybe I'm missing something but
20 there's got to be a reason why people aren't agreeing
21 to doing it, and I would just like to know.

22 MR. FREIDIN: Mr. Martel, I can indicate
23 I think here that there is agreement on a lot of this.
24 There is perhaps some disagreement or some work, in the
25 view of some people, to be done before a hundred per

1 cent of it can be done and --

2 MR. MARTEL: It's a timing matter then.

3 MR. FREIDIN: I will have to deal with
4 that in reply. You're going to hear that there is
5 agreement on some parts, but not others.

6 MR. MARTEL: That's what I say. I read
7 term and condition 84 and there's some of it, and I'm
8 just wondering where the hold up is for the rest of it.

9 MS. SEABORN: I think timing and the
10 level of detail will be a couple of issues that I
11 expect--

12 MR. MARTEL: We are making headway.

13 MS. SEABORN: --Mr. Freidin will be
14 addressing.

15 MR. CASSIDY: I would just indicate that
16 term and condition 84 is subject to all party agreement
17 in negotiations. Term and condition 84 was subject to
18 all party agreement in the term and condition
19 negotiations.

20 My understanding, what the Ministry is
21 doing is adding something on to that section, so
22 progress has been made, but we will have differing
23 views which presumably you'll hear about.

24 MS. SEABORN: That's correct.

25 Q. Now, Mr. Bax, just one more question

1 before we finish for today.

2 If you're conducting, for example, a
3 five-year FMA review, how do you get the information
4 you require to make a determination of effectiveness,
5 where do you go to look?

6 A. Well, we go to the project records
7 and the field right now, because sometimes the
8 foresters have a databank or a chart or table summary
9 of the various packages that they use and whether they
10 were effective or not or what particular sites they
11 were having problems on, but that doesn't come through
12 in the timber management planning documents right now,
13 so I go to the project records really and the forester
14 that's there.

15 Q. So can you get the information that
16 you require to conduct a five-year review from the
17 timber management plan itself without going any
18 further?

19 A. No.

20 MS. SEABORN: And, Madam Chair, perhaps
21 we should just have the flip chart example marked as an
22 exhibit. This is the flip chart entitled SGRs and free
23 to grow handwritten by Mr. Bax.

24 MADAM CHAIR: This will become Exhibit
25 2208.

1 ---EXHIBIT NO. 2008: Hand-drawn diagram entitled:
2 SGRs and Free to Grow prepared by
Mr. Bax.

3 MS. SEABORN: Madam Chair, I see it's
4 almost four o'clock. I was going to move on with Mr.
5 Bax for him to elaborate upon the exact terms and
6 conditions that MOE is proposing and the package that
7 we're proposing and, rather than break that up, perhaps
8 we should stop now and we will start with that first
9 thing in the morning.

10 MADAM CHAIR: And you expect to be
11 finished by noon tomorrow, Ms. Seaborn?

12 MS. SEABORN: Yes.

13 MADAM CHAIR: Okay, fine. Let's call
14 it -- Mr. Freidin.

15 MR. FREIDIN: Are you able to indicate
16 how long Mr. Hanna is going to be?

17 MADAM CHAIR: Mr. Hanna isn't here.

18 MS. MANN: He has indicated he would be
19 ready for cross-examination by mid-morning.

20 MR. FREIDIN: I'm sorry.

21 MADAM CHAIR: All right, good. Do we
22 have an indication --

23 MR. FREIDIN: No, there was an indication
24 this morning for later in the day, I forgot. I'm
25 sorry, I forgot.

1 MADAM CHAIR: All right. Let's call it a
2 day and we will be back at nine o'clock tomorrow
3 morning.

4 MS. SEABORN: Thank you, Madam Chair.

5 MADAM CHAIR: Thank you.

6
7 ---Whereupon the hearing was adjourned at 4:00 p.m.,
8 to be reconvened on Tuesday, April 28th, 1992,
9 commencing at 9:00 a.m.

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